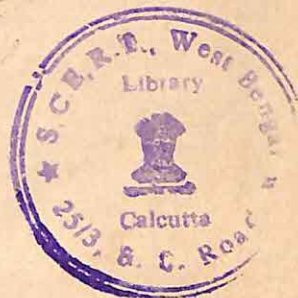


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Foundations of Educational Psychology

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CONTENTS

PREFACE	vii
1. THE NATURE AND SCOPE OF EDUCATIONAL PSYCHOLOGY	1
2. HUMAN GROWTH AND DEVELOPMENT	19
3. EMOTIONAL DEVELOPMENT	41
4. SOCIAL DEVELOPMENT	57
5. MENTAL DEVELOPMENT	75
6. LANGUAGE DEVELOPMENT OF THE CHILD	101
7. THE EXCEPTIONAL CHILD	113
8. INTELLIGENCE AND ITS TESTING	135
9. MOTIVATION	153
10. REMEMBERING AND FORGETTING	169
11. THEORIES OF LEARNING	182
12. PERSONALITY	206
13. PROJECTIVE TECHNIQUES	234
14. CAUSES OF ABNORMAL BEHAVIOUR	256
15. PERSONALITY DISORDERS	272
16. PSYCHONEUROSIS	286
17. EDUCATION FOR ADJUSTMENT	297
18. EDUCATION AND MENTAL HEALTH	306
19. GUIDANCE IN EDUCATION	319
20. STATISTICS IN EDUCATION	333
21. EDUCATIONAL RESEARCH	356
BIBLIOGRAPHY	371
INDEX	375

PREFACE

THE SUBJECT OF EDUCATIONAL PSYCHOLOGY occupies an important place in the teacher training programme. It is now realized that mere techniques are not sufficient for good teaching, but the teacher must have a good idea of human growth and development, laws of learning and other aspects of education which contribute toward the all round development of an individual. The author does not claim any originality in writing this book for he has written what he has learnt from his teachers in India and abroad. Moreover, he has been greatly helped in his teaching-learning experiences by his students. Thus keeping in view the needs of graduate and post-graduate students of education this book on educational psychology has been prepared. The author has tried to acquaint the reader with the ideas of eminent psychologists and educationists by quoting them to a considerable extent.

The organisation of the subject-matter is such as enables a student of psychology to realize that educational psychology is basically application of psychology to the problems of human growth and development in educational situations. The author is extremely grateful to various writers and publishers from whose works he has been greatly benefited while writing this book.

S. R. J.

CHAPTER I

THE NATURE AND SCOPE OF EDUCATIONAL PSYCHOLOGY

THE BACKGROUND

The nature and scope of educational psychology can be understood better if we have a knowledge of its past as well as the various schools and systems that have contributed towards its development. In ancient India educational psychology was found not in the form as we generally know today but it could be discerned from the various customs and traditions prevailing during the period for helping the alround development of the individual. It has been noted that in India the development of educational psychology started from the time of the *Rigveda* and continued till the 12th century A.D. "The process of this development does not seem to have been steady and systematic; but it seems to have a chequered career..."¹ Thus it is apparent that educational psychology is an essential part of any educational endeavour in all civilized countries of the world.

In the western world the beginnings of the educational psychology are traced from the writings of Plato (427-347 B.C.) who was very much keen to know the place of virtue in a man's life. In other words, Plato believed that a man was born with certain types of virtues and education helped in their expression as well as application in life. In this connection Plato discussed the nature of learning and the teaching of virtues. The problem of nature and nurture or heredity and environment was discussed. Plato made a clear distinction between mind and body and pointed out that the mind was concerned with learning and the function of the body was to receive sensations. It may be noted here that Plato thought of ideas as being innate and, therefore, they had to be expressed by means of education.

Aristotle (384-322 B.C.) was a scientist by temperament and, therefore, he analysed the process of learning and the nature of

¹ Das Gupta, D.C. *Educational Psychology of the Ancient Hindus* (1949).

the learner. According to him the soul or psyche was the main factor. But he not only believed that the soul was responsible for life in the organism but also it had the power to influence an individual's alround development. Thus according to Aristotle the soul or psyche had the power, potentiality or faculty to function in various ways. In this connection Aristotle mentions five faculties of the soul. These are:—(1) The vegetative, the faculty of the organism to grow and develop as well as to maintain itself; (2) the appetitive, the faculty concerned with the desire for satisfaction; (3) the sensory, the faculty for aesthetic enjoyment; (4) the ocomotive, the faculty concerned with movement; and (5) the rational faculty or ability to reason.

The reasoning faculty was further differentiated into active and passive intellect. According to Aristotle, the active-intellect aspect of the faculty to reason survived after death. It was assumed that this active aspect of the reasoning faculty entered the body at birth from the primordial mind or the creator of the universe and returned to it after death.

Faculty Psychology

The five faculties mentioned by Aristotle became the fundamental basis of faculty psychology. The term "faculty" is derived from the Latin word *facultas* meaning a capacity or power to act. In the past there has been a great controversy over the number of faculties possessed by an individual. According to Woodworth, "no doubt the great thinkers who spoke of the faculties of the mind were perfectly clear on this matter, but many lesser men, even down into the 19th century were betrayed by the form of expression into supposing that the faculties were processes, an answer to the question 'How?' "² Thus it is apparent that the faculty psychology started simply with the meaning that a particular type of behaviour was performed. In other words, it was concerned with 'what' and not 'how'. The effort of psychologists to understand the 'how' of human behaviour led to the development of another type of psychology known as functional psychology. We shall consider this type of psychology a little later.

It may be mentioned here that during the 19th century the five faculties as propounded by Aristotle were reduced to three faculties

² Woodworth, R. S. *Contemporary Schools of Psychology*, 1951, p. 13.

of knowing, feeling and willing. Furthermore phrenologists of the 19th century assigned particular places in the brain to various faculties. It was believed that the faculty of knowing or cognition required the help of senses. In other words, it was not self-initiating. On this basis the medieval Latin dictum: 'there is nothing in the intellect that is not first in the senses,' became popular. In other words, this dictum emphasized the fact that when the sensory data was available the active intellect abstracted its essence. For example, the sensory data of 'tree' when abstracted gave the essence of 'treeness'. It is thus evident that faculty psychology greatly emphasized the role of intellect in learning and neglected the part played by senses. But Comenius (1592-1670) emphasized the role of senses in learning. He believed that with the proper training of senses it was possible to develop imagination and from imagination the power of reasoning and from reasoning the will could be developed. In other words, Comenius laid full emphasis on the training of senses and related this training with the training of imagination, reasoning and will.

Formal Discipline

The importance given to faculties of mind led to the belief that there should be special education for these faculties. According to Quintilian (First century A.D.) the study of geometry helped in quick perception. Likewise there were other subjects which helped in the growth and development of different faculties. Thus teaching of different subjects in order to develop different faculties of the mind came to be known as formal discipline. The theory of formal discipline as it is understood today stands for the belief that the mind has a number of faculties such as memory, imagination, observation, will power, etc. and that they can be strengthened by exercise. The term 'mental discipline' is also used now-a-days in place of 'formal discipline'. Nonetheless this theory is only of historical importance and the psychological evidence available does not support it.

Transfer of Training

Allied with the theory of formal discipline is the concept of transfer of training. It was assumed that when a faculty developed its power by means of exercise in one field it automatically helped the other faculties of the mind. In other words, transfer of training is a kind of influence "that the existence of an established habit,

skill, idea or ideal exerts on the acquisition, performance, or relearning of another similar characteristic; such influence may facilitate new learning (positive transfer), retard or inhibit new learning (negative transfer) or be of negligible effect on new learning (zero or indeterminate transfer)".³ This concept of transfer of training is still found useful in the discussion of learning and is being retained in educational psychology. But it has to be borne in mind that the idea of transfer of training originated from the doctrine of formal discipline.

John Locke (1632-1704) was one of the great exponents of formal discipline and he wrote in his book: *Thoughts Concerning Education* that, "as the strength of the body lies chiefly in being to endure hardships so also does that of the mind". Locke believed that the teaching of mathematics trained an individual's mind in a way that he was able to develop his faculty of reasoning. About giving a place to mathematics in the curriculum he wrote, "I have mentioned mathematics, as a way to settle in the mind a habit of reasoning closely. . . . having got the way of reasoning, which that study necessarily brings the mind to, they might be able to transfer to other parts of knowledge as they shall have occasion". Thus Locke discussed the importance of formal discipline and pointed out the way for transfer of training. He also emphasized the fact that learning ought to be made pleasant. It is a kind of contradiction which we find in Locke for he emphasizes formal discipline on the one hand and desires learning to be a pleasant activity on the other. There are other contradictions in the educational ideas of Locke more particularly in his concept of *tabula rasa*.

If the mind is a *tabula rasa* then there is no question of the faculties of the mind for the assumption of faculties implies the presence of innate ideas and abilities which have to be developed by means of education. So Locke who in the beginning supported the doctrine of formal discipline later on appears to have changed his mind under the influence of the philosophy of naturalism and propounded the idea that mind was like a *tabula rasa* and, therefore, no ideas existed before or even at the time of birth. According to Locke the role of environment in the life of an individual was extremely important for whatever knowledge he acquired came from his contacts with the environment. In other words, Locke did not

³ Good, C. V. *Dictionary of Education*, 1959.

support the idea of heredity like Plato and Aristotle. He emphasized the role of environment in the education of the individual. The mind which was considered to be blank in the beginning received impressions from the environment. But there was the problem of chaos which could be created if the mind was assumed to receive all kinds of impressions. Therefore, Locke had to make modifications in his concept of *tabula rasa* and suggested that the mind had power to discriminate between various impressions and receive only those which were of use. The phrase "association of ideas" is highlighted in the educational psychology of Locke but its originator was Aristotle who had explained this concept in connection with the functioning of memory.

Association of Ideas

In western philosophy and psychology "association of ideas" has been emphasized to a great extent. As stated earlier Aristotle was the first philosopher to describe this concept and later on other philosophers interested in human psychology further explained it. In the 18th and 19th centuries the concept of "association of ideas" was further analysed by David Hume and Thomas Brown. From educational point of view, the ideas expressed by J. F. Herbart are more important than those of Hume and Brown. As we know, Herbart propounded the theory of learning based upon "apperception". The basis of apperception was the association of ideas. According to Herbart, apperception was a selective process and it was concerned with those ideas which were related to the important needs and activities of an individual. In other words, the process of apperception was really concerned with relating new experiences to one's past experiences. In due course an apperceptive mass was formed. The term apperceptive mass stands for "one's total knowledge or experience in relation to new facts or situations". Thus the doctrine of apperception proved useful in understanding the nature of learning and emphasized the role of the relationship between new and old experiences.

SCHOOLS OF PSYCHOLOGY

We have so far considered the background of educational psychology in a general way. But it is desirable to devote some time to different schools of psychology and point out their bearing on

education. In other words, it is necessary for a student of educational psychology to know how far different schools of psychology have contributed towards the growth of educational psychology. There are mainly five schools or systems of psychology which have become popular and they have to be considered in relation to education.

Structural Psychology

The first school or system of psychology is known as structural psychology. Structural psychology emphasizes the role of nervous system in human experience. In other words no experience is possible without the participation of nervous system. The structural psychologists emphasize the structural aspect of mind. Due to this in structuralism the main assumption is that human consciousness is the sum total of various mental capacities and abilities. In the study of mental consciousness the structural approach emphasizes the analysis of mental activities. It may be noted here that according to structuralism consciousness is the sum total of mental activities. There have been experimental studies of the structure of human mind and the works of Wundt (1832-1920) and Titchener (1867-1927) are relevant in this respect. These experiments have thrown sufficient light on various aspects of mental processes and their properties, particularly the properties of quality, intensity, duration, extensity and vividness. These properties have to be analysed and, therefore, in structural psychology there is great stress on the analysis of mental processes.

There are three main groups of mental processes that are emphasized in structural psychology. The first group is composed of those mental processes that result from the excitation of sense organs and produce sensation. Thus sensation is the one group of mental processes that is considered primary. (From educational psychology point of view it is to be noted that emphasis on sense training in education may be related to the findings of structural psychology in the area of sensation.) The second group of mental processes is related to the stimulation of central nervous system. The mental processes, which are centrally aroused sensations, are in the form of image. The image produced shows such qualitative differences as are found in the case of sensations. The third group of mental processes pointed out by structuralism is affective in nature. In other words, the affective processes produce

feelings of pleasantness or unpleasantness as the case may be. As stated earlier, the properties of mental processes are always present in varying degrees in the three groups of mental processes just stated.

(The main contribution of structural school of psychology is the scientific method and the emphasis on experimentation. Researches pertaining to sensation, feeling and attention have provided such knowledge as has been useful in the education of children.) (Psychological subjects like perception, imagination and memory have also been studied by structural psychologists and the findings have been utilized in educational psychology. This school has also emphasized the training aspect of a psychological observer. No reliable psychological observation is possible without proper training. Therefore, structuralism has contributed towards the growth of methodology of educational research also.

(The limitation of this school is primarily found in its mechanistic approach towards dynamic psychological processes. It is assumed by structural psychologists that the composition of mental life is "wholly dependent upon certain previous events of a strictly physical nature, and mind reveals no other properties than those shown in its composition". In other words, the mechanistic approach is evident in the assumption that the occurrence of one activity is dependent on the previous activity. Thus we find a very close sequence of physiological and psychological processes. This view has made human mind a passive agent and it is regarded merely as a composition of various mental elements. As we know, now-a-days mind is considered rather dynamic and its functions are difficult to be defined.

Functional Psychology

There have been psychologists who opposed the structural approach to human psychology and they emphasized the functional aspect of mind. In other words, the functional psychologists consider mind in relation to its functions. In functional psychology mind is not so passive as it is in structuralism but it is dynamic, active and functions properly. Consciousness is such a function and it helps the individual to maintain himself. In other words, mind is the means of survival. It is with the help of mind that the individual solves his problems and functions in his milieu.

Another important feature of functional approach is that

mind is an agent of adaptation and adjustment. The concept of adjustment is mainly biological and it was used by functional psychologists under the influence of biological sciences. We can, therefore, say that functional psychology has been very greatly influenced by biological sciences.) According to Cameron, "Psychology, like biology, may adopt as its fundamental conception for the understanding of man the view that man, like all other living organisms, is subject to a constantly recurring series of changes due to the necessity of adaptation to environment. All animals, including man, are provided with structures and functions that make it possible for them to lead a more or less independent existence. If the environment is not suitable to their needs, they may react in some cases by moving away from the unfavourable surroundings; or in other cases by rearranging or refashioning the environment, as for example, when man builds dwellings".⁴ It is now clear that functional psychology emphasizes mental operation and mental adjustment to the environment.)

As regards the bearing of functional psychology on education, it may be noted here that (the emphasis on education for adjustment as is found today may be due to the influence of the functional school of psychology.) Secondly, the role of environment in education has also been clarified by the ideas of functional psychologists.) The emphasis on activity as such may also be considered as a contribution of this psychological school to education. Thus we can assume that (functional psychology has influenced educational psychology to the extent it has clarified and emphasized the function of mind and adjustment of the individual in his environment.) As we know, (in modern educational psychology it is considered one of the main functions of education to provide the individual with such knowledge, skills, attitudes, understandings, etc. that make him a well adjusted human being.) John Dewey has contributed a lot to educational philosophy and psychology from the functional point of view. (If we want to know the contributions of functional psychology from the educational point of view we have to study John Dewey thoroughly. To sum up, we can say that the emphasis on mental function rather than the mental structure of the individual, the study of the individual as a whole and the adjustment of the individual are some of the main contributions of functional psycho-

⁴ Cameron, E. *Educational Psychology*, 1927.

logy. (Another important feature of functional psychology has been the study of various human problems. Thus we find that functional psychology has been very fruitful in its applied form. In other words, (the fields of educational psychology, child's psychology, animal psychology, individual differences and mental testing have been greatly benefited by functional psychology. It has also in a way led to the rise of third important school of psychology, that is, behaviourism.) Studies of animal intelligence and behaviour provided enough material for the rise of behaviourism.

Behaviourism

(The school of behaviourism has influenced educational psychology mainly in the area of teaching and learning.) Pointing out the place of behaviourism in the psychological systems Higginson states that, "in the structural system, the bodily processes are assumed to run their courses as the physiological basis of the mental in the functional system the mind employs directly the receptor organs, the nervous system and the effector mechanisms as effective tools in adjustment. In neither, is the body the direct object of examination or study. We must now consider another attempt to understand a human organism in which the abstraction has taken an opposite direction to that of the above two. (Here the mental; side has been partially, or in some cases wholly disregarded, while a major degree of emphasis is placed, instead, upon the purely bodily side of the organism. This system is known as behaviourism".⁵)

Behaviourism as the name implies studies the behaviour of an organism. It is not concerned with the structure or functions of the mind but with the behaviour as it is observed. In this connection behaviourism emphasizes the proper study of the stimuli producing responses. In other words, stimulus-response mechanism is an essential part of behaviourism. But it has to be noted that behaviourism has many shades and it cannot be so simply defined. We shall know more about it when we study various theories of learning.

As stated earlier, behaviourism has mainly contributed to the area of learning. In other words, educational psychology has been benefited by behaviourism to the extent it has thrown light upon the nature of learning and other allied subjects. Studies by John

⁵ Higginson, G. D. *Fields of Psychology*, 1931.

B. Watson, the 'founder' of behaviourism, have been useful to certain extent in the explanation of emotions and child behaviour. Like other schools of psychology, behaviourism has also contributed to the methodology of educational research. It has emphasized objectivity in the experimental studies of child education. There is a charge against this school that it is materialistic and mechanistic. In other words, it has neglected the "inner being" and emphasized the outer behaviour to such a great extent that the idea of "whole man" was lost. It was left to another group of psychologists known as the Gestalt group which laid total emphasis on the individual as a whole.

Gestalt Psychology

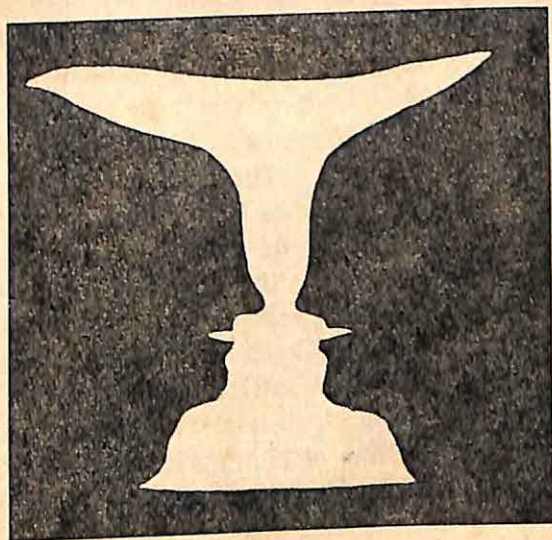
Gestalt psychology developed in Germany immediately before the World War I. In 1912 a group of German psychologists felt that there has been undue emphasis on analysis in psychology with the result that the totality was lost. In other words, they wanted to emphasize that while studying the parts of psychological man the sight of the total or whole man should not be lost. The term 'gestalt' is of the German language and its English equivalent is not available. But the English words which come close to the concept of 'gestalt' are form, pattern, configuration or shape. Thus the 'gestalt' system of psychology emphasizes the configuration of a psychological phenomenon. Whatever happens is complete to the extent it is understandable.

Gestalt psychology owes its growth and development to the works of Max Wertheimer (1880-1943), Kurt Koffka (1886-1941) and Wolfgang Kohler (B. 1887). These psychologists performed a number of experiments on the nature of perception, learning etc., and pointed out that the nature of perception involves certain factors that provide meaning to the object of perception. Likewise experiments were performed to show that learning took place not by trial and error but by insight. We shall consider in detail the gestalt theory of learning later. (The main idea of the gestalt system is that there is an organisation of human experiences in a given field.) In other words, nothing happens in a haphazard manner and human experience tends to get itself organised or patterned. In order to understand the patterned behaviour or experience one cannot afford to analyse it to the extent that the gestalt is lost. That is why gestalt psychologists persisted against structural analysis. They

were also against the behaviouralistic method of study. According to gestalt psychologists the best method of study is integrative and the field in which an experience occurs should also be considered in its natural setting. Koffka described the gestalt method of study in these words: "We then begin with the organism in its environment and study its reactions. Among these we may reckon also those which are usually termed consciousness. I mean the fact that the physical world exists for the organism as its own surroundings—which we refer to as its phenomenal world—though, of course, to the organism these surroundings appear as perfectly real surroundings—and the other fact that the organism also knows itself, feels hunger and pain, rage or lust".⁶ Thus it is clear that in gestalt psychology reactions of the organism are described keeping in view the feelings and activities performed by it. In other words, gestalt is not isolated but is described in its integrated form.

The gestalt psychologists approach experience as an integrated and patterned phenomenon. In other words, all experiences

Figure 1



Face—Goblet Arrangement of Figure and Ground. From E. Rubin *Visuell Wahrgenommene Figuren*, 1921.

⁶ Koffka, K. "Introspection and the Method of Psychology". *Brit. J. of Psychol.*, 1924, 15.

possess the quality of wholeness.) In the study of wholeness two aspects have been emphasized by the gestalt psychologists. These are figure and ground. According to them there is a background of an experience and this background highlights the qualities of the experience in question. One thing is clear that it is in relation to the background that the figure assumes importance. The qualities indicated by a figure are always in relation to the ground. This is illustrated by the Figure 1 (see page 11).

In this figure we may observe a goblet or two faces. But we cannot see both together for one of them has to be a part of the ground. (The problem of figure-ground relationship has been thoroughly studied by gestalt psychologists and they have pointed out that there are certain directions of transformation in figure-ground relationship.) Due to limitation of space we shall not discuss this in detail. Suffice it to say that gestalt psychology lays full emphasis on integration and rejects analysis. It also emphasizes the study of whole organism in relation to its environment. Thus the gestalt system of psychology fulfilled a great need of modern psychology by emphasizing the integrative aspects of experience.

As regards the implications of gestalt psychology for educational psychology we may point out that it greatly helped educational theory and practice by its emphasis on wholeness of experience. In other words, the child as a whole was to be studied and his experiences and behaviours were also to be understood in relation to the environment in which he lived. (The gestalt system had its major impact on the study of the problems of children particularly in relation to their learning and development.) Koffka wrote a book on educational psychology under the title *The Growth of the Mind*. This showed the amount of interest the gestalt psychologists took in the problems of child-education. It is, therefore, evident that the gestalt system of psychology contributed to modern educational psychology by providing insight into the nature of learning and its laws as well as the problems of child-psychology.)

Psychoanalysis

The psychological system of psychoanalysis propounded by Freud (1856-1939) has also influenced educational psychology. Psychoanalysis is a theory of mental life, a method of psychological study and a technique of mental treatment. Freud and his associates pointed out that human mind has three layers: conscious, pre-

conscious and unconscious. One of the original contributions of Freud was the concept of unconscious. He pointed out that the unconscious aspect of human mind was very dynamic and it affected human behaviour to a very great extent. Human motives originating from the unconscious were not easily understood by an individual. Then Freud mentions id, ego and super ego. On this basis he provided a structure of human personality and showed that nature of early childhood experiences was extremely import for it determined to a great extent the nature of adult personality. Thus Freud and his associates threw light on the problems of educational psychology and proved beyond doubt that no satisfactory study of a person was possible unless his early childhood experiences were considered. This view had a tremendous impact on the contemporary educational theory and practice. The education of infants assumed a new significance for it was accepted that if infants and children gained happy experiences they would also remain happy as grownup adults.

Recently Gerald H. J. Pearson wrote a paper on the psychoanalytic contributions to the theory and practice of education. He pointed out that (apparently education and psychoanalysis were opposed to each other. The purpose of psychoanalysis is mainly to make an individual aware of his unconscious motivation so that he is able to free himself from the complexes of his mind. On the other hand the purpose of education is to teach an individual certain skills so that he is able to manage his affairs in a socially desirable manner. For this he has to learn certain "defences" and inhibit the expression of unhealthy feelings and emotions. (None-the-less psychoanalysis and education have one common aim and that is the good of the individual. Due to this (psychoanalysis has been concerned with the nature of childhood experiences and early training which contribute to the healthy development of personality.) (Early childhood experiences lead to the development and organisation of the ego and education is a vital factor in this respect.)

Since the literature on psychoanalysis is a vast one we shall not attempt to present here a full picture of this system for this is likely to remain incomplete. It is, therefore, suggested that only those aspects of psychoanalysis should be mentioned here as are directly related to educational psychology. (To begin with the psychoanalytical theory of human mind is of great importance for modern educators. The teacher has to be aware of the fact that

a child is motivated many a time unconsciously and some of his typical performances are the products of his unconscious mind. (The psychoanalytical theory of personality has also proved useful in the study of educational psychology. This theory has enabled educators to have a better understanding of a child and the problems of his personality development.) In the area of learning the psychoanalytical explanation of inhibitions has been very useful. Why certain tasks are rejected and not done has been explained by psychoanalysis. Under what conditions a child can learn better is also made clear by the psychoanalytical approach to education. Thus the system of psychoanalysis has contributed a lot to modern educational psychology and no educator can afford to remain ignorant of the principles and practices of psychoanalysis.)

We have considered the five systems of schools of psychology and pointed out their relationship with as well as some of the contributions to modern educational psychology. What has been attempted here is merely an invitation to the serious student for the study of a history of psychology. It is the considered view of the writer that no student of education should remain ignorant of the psychological systems and schools. It is in the light of modern psychological systems and schools that we can understand problems of educational psychology fully. That is why we thought it proper to give some idea of the various systems and schools of psychology in relation to education.

THE NATURE AND SCOPE

The nature and scope of educational psychology should be considered in the light of general psychology and its bearing on education. (Psychology deals with behaviour and responses of an individual made with a view to finding satisfaction in his environment and creating adjustment for a happy life. In other words, psychology studies all kinds of behaviour and responses, processes and activities, experiences and adjustments made by an organism.) Besides these, human psychology is concerned with activities like feeling, thinking, imagining, perceiving, etc. It attempts to study the conscious as well as the unconscious behavioural responses of the human organism. It employs scientific method in its study and collects data to understand the facts of psychological life. It is on the basis of these facts that psychological hypotheses and laws

have been formulated. Thus psychology studies an individual's behaviour in all situations of life.

(Educational psychology on the other hand, does not attempt to study behaviour of human organisms in all situations of life. It is concerned only with educational situations.) In other words, educational psychology studies human behaviour in terms of its growth and change with a view to making it meaningful and significant in the life of the individual and the society in which he lives. It is the aim and purpose of education to help in the development of human personality in a manner that the individual becomes a useful and creative member of his culture and society. That is why every society provides for education and looks after its agencies. Educational psychology studies the problems of education created by social situations, and makes efforts to facilitate the functioning of the agencies of education. From this point of view, it can be said that the aims and objectives of educational psychology are: (a) to develop the latent abilities of the individual in order to make him intelligent and efficient in social life and (b) to make him realise his real nature and purpose in life so that he is able to have the best of his culture as well as develop a "world-view".)

Aims and Objectives

The aims and objectives of educational psychology can be understood also in relation to educational philosophy. (Skinner⁷ points out that educational philosophy answers "primarily questions of *What* and *Why*. What is the meaning of human life and the world? What is knowledge? What is the aim of education? What shall we teach? Why should we teach? All these questions of *What* and *Why* relate to philosophy of education. But the questions of *How* and *When* are dealt by educational psychology.) How the meaning of human life and the world could be taught and explained? When is it proper to teach it? How the aims of education can be achieved? When is it possible to introduce the teaching of a particular subject? All these questions are answered by educational psychology.

The Teacher and the Taught

The nature and scope of educational psychology can be under-

⁷ Skinner, C.E. (Ed.). *Educational Psychology*, Ch. I.

stood from another angle. It is the angle of the teacher and his relationships with his taught. The teacher teaches the taught. In this process, we observe three variables. The first variable is the *teacher*. For him educational psychology is meaningful if it makes him an intelligent and understanding individual, and helps him to be a good teacher. In other words, educational psychology should enrich the life of a teacher so that he develops a healthy and harmonious personality and enables him to be an efficient teacher. The second variable of *teaching* is philosophically determined in terms of questions based on *What* and *Why*, but psychologically transmitted by the teacher to the taught in relation to questions of *How* and *When*. The third variable of the *taught* requires an understanding of its nature and problems by the teacher. The teacher must know the taught in terms of his psychological abilities to learn, his emotional make-up, his social attitudes, his personality growth and development. It is not sufficient for the teacher to know simply the subject he is going to teach. He must *know* the pupil also whom he is to teach. Here the study of educational psychology helps the teacher. By studying educational psychology, the teacher is able to have a knowledge of human behaviour specially in educational situations. He is able to follow the pattern of human growth and development, the laws of learning, the emotional and social development of the child. Thus he is in a good position to teach the pupil.

Educational Growth

(It is pointed out by Stephens that the responsibilities of the teacher are mostly in terms of educational growth of the child, for "educational psychology is the systematic study of educational growth or development.) In the study of educational psychology we try to ascertain the nature of educational growth, to learn its typical features and to understand the forces which affect it."⁸ In view of the above, it is suggested that the teacher should encourage educational growth and direct it within such limits as provide enough freedom and initiative to the child.) He should be aware of the forces which influence educational growth and adjust his teaching to the welfare and development of the child. And finally, the teacher should be a good student of human growth and development

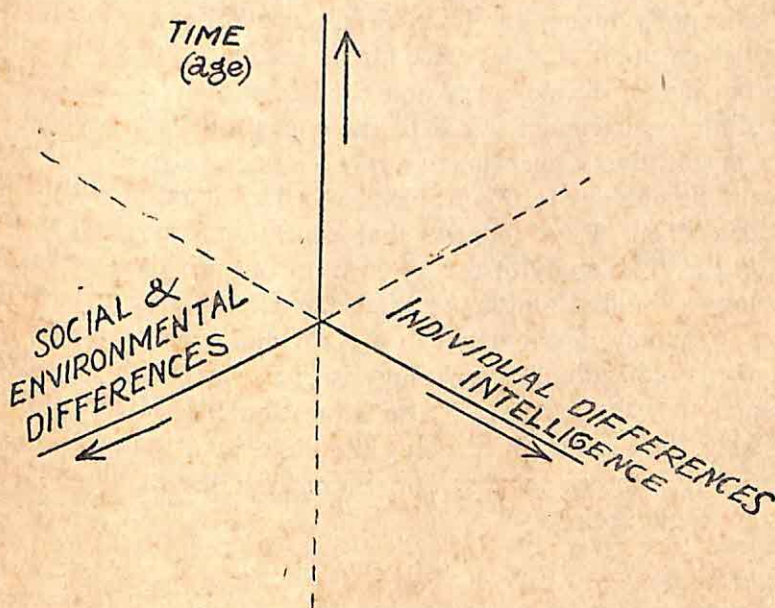
⁸ Stephens, J.M. *Educational Psychology*, 1951.

so that he understands the difficult principles involved into educational growth of the child.

Peel's Viewpoint

Defining the aim and purpose of education as "to promote the development of a well-integrated person, capable of exercising such responsibility in society as his powers allow", Peel^o points out the scope of educational psychology. According to him, educational psychology broadly deals with the nature of learning, the growth of human personality, the differences between individuals, and the study of the person in relation to society. In the discussion of development, the educational psychologist is concerned with changes in the individual brought about by growth and factors like learning and maturity. In other words, he attempts to understand and explain development in relation to time or age of the individual. Likewise, in the treatment of *individual differences*, the educational psychologist pays attention to mental and psychological qualities which are indicative of the differences between the individuals.

Figure 2



^o Peel, E.A. *The Psychological Basis of Education*, 1956.

Peel has given an excellent schematic representation to the scope or fields with which educational psychology is concerned. The Figure 2 illustrates Peel's point of view (see page 17).

On the basis of this figure, Peel suggests that it is possible for us to investigate the significance and degree of relationship between age and intelligence, intelligence and home conditions, and finally the study of the development of children from different kinds of homes longitudinally. There is no doubt about the utility of these suggestions. Useful studies can be planned and completed for widening the horizon of educational psychology.

It is proper to conclude Peel's point of view by giving his definition of educational psychology:

Educational psychology is the science of education and helps the teacher to understand the development of his pupils, the range and limits of their capacities, the processes by which they learn, and their social relationships.¹⁰

Trow's Approach

Trow's¹¹ approach to educational psychology is based on a psychological definition of education. According to him, "education is essentially human development in a controlled environment." (From this viewpoint, it is desirable for the teacher to understand the nature of human development and the techniques of controlling and creating environment suited to the educational interests of the child.) In this, the teacher has to apply his knowledge of individual and social psychology to the problems of educational growth of the individual. Thus Trow suggests that educational psychology may be defined as "the study of the application of individual and social psychology as subject matter, research techniques, and professional services to human development in a controlled environment."¹² In other words, educational psychology is concerned with all aspects of human development which are educationally significant and which help the teacher in teaching the child in a manner that he develops his total personality and becomes a useful and creative member of his society.

¹⁰ *Ibid.*, p. 8.

¹¹ Trow, W.C. *Educational Psychology* (IIInd Ed.).

¹² *Ibid.*, p. 9.

CHAPTER 2

HUMAN GROWTH AND DEVELOPMENT

NATURE AND PRINCIPLES

It was pointed out that educational psychology is devoted to the study of the individual in educational situations and that its prime interest lies in the study and solution of problems relating to educational growth. Thus educational growth requires an understanding of the nature and principles of human growth and development. Without this understanding an insight into the problems of educational growth is not possible. Hence it is necessary to understand what is growth and its relationship with education. How far the general pattern of human growth and development is a part of the educational growth and development of the individual.

Growth as a Whole

The most significant fact about human growth and development is that individual grows as a whole. His physical, emotional, social, mental and other types of growth are interrelated. They are inter-dependent in the sense that growth in one aspect is dependent on other aspect of the human life. In other words, growth processes are many sided and they are related with one another in a dependent as well as contributory manner. But interrelationship and interdependence in the growth processes are difficult to be recognized and differentiated in many cases.

Concept of Growth

In the human growth and development, bodily changes attract our attention first. "During infancy and childhood the body steadily becomes larger, taller, and heavier. To designate this change the term *growth* is used. Since the rate of growth in the various parts of the body is not the same, in either an absolute or a relative sense, growth necessarily involves changes in body proportions as well as in overall stature and weight".¹ The term *growth* is thus

¹ Stott, L.H. *The Longitudinal Study of Individual Development*, 1955.

indicative of increase in bodily dimensions. But it also includes functional changes as well. In other words, growth includes both *maturational* and learning changes.

Definitions of Development

Before we consider concepts of maturation and learning, it is desirable to define *development*. Ordinarily, growth and development refer to the same concept, and most of the writers have not cared to define them separately since they represent the same phenomenon. But a dictionary definition suggests that *development* represents "changes in an organism from its origin to its death, but more particularly the progressive or non-deteriorative changes from origin to maturity. A number of *stages of development* in human being and related species are conventionally distinguished. Unfortunately, development is a matter of a number of relatively independent functions, hence a person may be in one stage by one criterion, in another stage by another. A person may have a child's physiological, an adolescent's social and an adult's intellectual development"² Thus we see that there may be different stages in the development of an individual. But this viewpoint is not acceptable to those who emphasize the interrelationship and interdependence. How do they define *development*, will be presented after we have considered the intermediary concepts.

Maturation and Learning

Stott points out that along with bodily changes which are termed as *growth*, there occur such changes which are qualitative in nature. Those changes prepare the ground for functions of the body. In other words, changes, in the bodily structure are less evident. "*Maturation* is the term used to designate these less evident changes, involving primarily the internal structure of the body."³ A good example of maturational changes is provided by the brain of a very young infant. The brain during early childhood is characterized by such changes as lead to further 'organization' extension, and interrelation of nerve cells already present, making ready for functioning of a progressively higher order. Thus growth and maturation in bodily dimensions naturally lead to greater functional possi-

² English, H. B. *A Student's Dictionary of Psychological Terms*.

³ Stott, L. H. Op. cit., p. 1.

bilities. For example, a child begins to walk when his legs are strong enough to walk. In other words, when bodily organs used in walking are structurally grown, then and only then function of walking can take place. "This exercise of structures—this practice of a new function—brings about changes in the structures involved, and in the function itself. This third kind of change which comes about functioning is called learning."⁴ Further it is pointed out that "growth changes, maturational changes, and learning are highly interrelated processes. The overall result of these processes is the progressively expanding functional facility of the child. The term *development* is used to designate this overall change, and, in an inclusive sense, to refer to any or all of the specific processes of change described above."⁵

In the light of the above, it is clear that *development* indicates overall changes as well as "any or all" changes in the individual. But, again, as pointed out earlier, *growth* and *development* are used to denote the same phenomenon, and that is why these two terms occur together. Sometimes *growth* alone is used to designate all the quantitative and qualitative changes brought about in the structure and function of a human organism. In other words, growth is considered to be an attribute of the dynamic, integrated experience of a living organism. McConnell defines growth as "the product of the interaction of the organism and its environment". McGraw considers it as a "process resultant from a constant flux or interchange of energies within its environment." Here we find that growth is equally influenced by heredity and environment. Another implication is that "no growth is possible without some stimulation, no development conceivable without an environment." In this connection, interdependence of heredity and environment is clearly pointed out.

General Characteristics

According to Breckenridge and Vincent⁶ following characteristics are found in growth:

1. Growth is both quantitative and qualitative.

⁴ *Ibid.*, p. 2.

⁵ *Ibid.*

⁶ Breckenridge, M. E. & Vincent, E. L. *Child Development*; Philadelphia: W. B. Saunders Co., 1943.

2. Growth is a continuous process.
3. Growth follows an orderly sequence.
4. Growth patterns are not absolutely uniform from child to child.
5. The tempo of growth is not even.
6. Both rate and pattern of growth can be modified by conditions within and without the body.
7. Growth is complex. All of its aspects are closely inter-related.
8. Each child grows in his own unique way.

Some of the other characteristics⁷ of growth are:

1. Growth proceeds most rapidly in the early years of life.
2. Relative growth rates of individuals tend to remain constant from infancy to maturity.
3. Growth is a process both of differentiation and of integration.

The above characteristics of growth will be seen when we study the various aspects of growth and development of the child in educational situations. But it is to be emphasized here that "during the period before the capacities of the child have reached the peak of their development, changes in behaviour are the effects both of maturation and of learning. Beyond maturity behaviour modifications are the result mainly of learning."⁸

HEREDITY AND ENVIRONMENT

A knowledge of the nature and principles of heredity is helpful in understanding the biological and the environmental factors influencing human growth and development. The pioneer work in this field was done by Mendel whose work came into light in 1900 A.D. Gregor Mendel (1822-1884) was a monk in Austria. He was fond of experimenting with garden peas. For over a period of 8 years he mated white flower peas with red flower peas and discovered certain 'elements' which were produced consistently in a definite

⁷ McConnell, T. R. "The General Nature of Growth & Development", *Educational Psychology*, edited by Skinner.

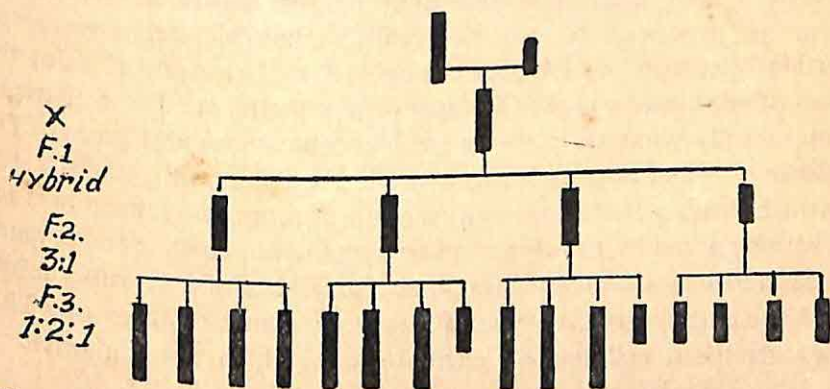
⁸ *Ibid.*

ratio between red and white offsprings of peas. The results of his experiments were published in the *Proceedings* of the Natural History Society of Brunn in 1866. As stated earlier, the attention of scholars was drawn to this paper of Mendel in 1900, that is after 38 years from the date of its publication. The rules for hereditary transmission as discovered by Mendel came to be known as Mendel's laws. These are the law of segregation and the law of independent assortment.

Mendel's Laws

In one of the experiments Mendel used two types of peas—one was the tall type and the other the short type. When the tall and short type of peas were cross-fertilized it was discovered that the hybrid peas for the first time were all tall. But when the hybrid peas were permitted to self-fertilize the crop produced in the second generation showed that there were three tall pea plants to one short plant. In other words, the ratio was 3:1. In the third generation of the peas it was found that all short type of peas produced peas of their own variety, thereby showing that in the third generation the hybrid element was segregated. It was also discovered that $\frac{1}{3}$ of the tall type of peas produced peas of their own type. But the remaining two-thirds of the tall type peas produced both tall and short types in the ratio of 3:1. In this way Mendel found that in the third generation of the peas the ratio was "one true tall to two hybrids, to one true short; or 1:2:1." This is illustrated in the following diagram.

Figure 3



The "Family Tree" showing the result of crossing tall and short varieties of peas. Tallness is dominant and is indicated by the longer lines.

On the basis of this experiment it was established that inherited traits vary in definite proportion. In this particular experiment the dominant trait was the tallness and the recessive trait was shortness. During the course of three generations the dominant trait in the first generation remains dominant, in the second generation it is present in 3:1 ratio and later in the third generation the ratio is 1:2:1.

According to Higginson⁹ there are three primary features of Mendel's law. The first feature is called the principle of *unit traits* which indicates that "each simple, heritable feature observable in the adult offspring is attributable to the presence of a hypothetical unit character (or characters) present in the germ cell". The second feature of Mendel's law is the *principle of dominance*. According to this principle when two traits or characters become paired one of them becomes dominant. Further the dominant trait is stamped upon the offspring. The third principle associated with Mendel's law is that of segregation, according to which "unit factors always retain their individuality". It is to be noted that Mendel was able to establish law of inheritance on the basis of quantitative studies. In other words, the nature of heredity was for the first time studied by experimental method and produced such results as could provide quantitative statements.

The Genetic Background

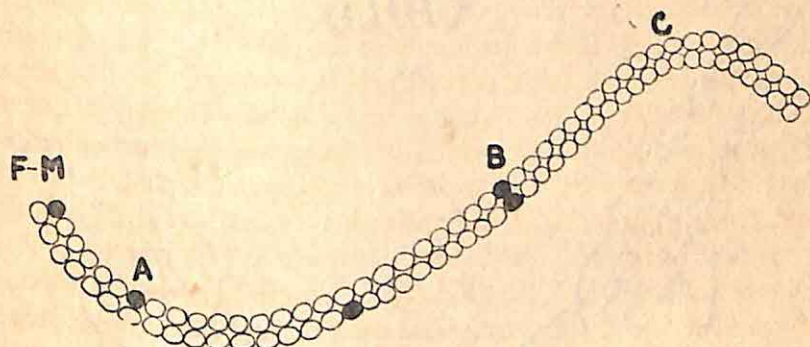
The work of Mendel was extremely helpful in the growth of a new science known as genetics. T.H. Morgan and Raymond Pearl were among the pioneer Americans who examined further Mendel's laws and threw new light on the nature of heredity in terms of genetics. It may be recalled that Mendel mentioned certain 'elements' which were supposed to be responsible for the laws of segregation and of independent assortment. These elements were actually what we now know as chromosomes and genes. The science of genetics explains that when a male sexcell or sperm gets fertilized with a female sex cell or ovum it contains 48 chromosomes. It is to be noted that every sperm or ovum contains 48 chromosomes. When fertilization takes place 24 chromosomes of a sperm combine with the complementary type of 24 chromosomes of an ovum. Thus each fertilized cell has 48 chromosomes which are inherited in

⁹ Higginson, G. D. *Fields of Psychology*, 1931, p. 96-97.

equal numbers from father and mother.

Chromosomes contain thousand of genes. But each pair of chromosomes has the same number of genes and arranged in the same order. For example if two strings of genes are placed side by side the genes of each pair of chromosomes would be found arranged in the same order. The following figure illustrates the arrangement of chromosomes:

Figure 4



The genes are represented by beads in paired chromosomes of various lengths. One string comes from the father, the other from the mother. The black beads represent defective genes. Gene A is defective in the mother but normal in the father, so the offspring will be normal in the ratio of 3 to 4. Gene B is defective in both parents; if this determines feeble mindedness, the child will be defective even though both parents are normal. If gene C determines genius, child will be a genius, though the parents are not. (From Madigan: Psychology, p. 57.)

It should also be noted that the genes are the carriers of physical and temperamental traits. The genetic process has been well explained by the figure 5 (see page 26).

How the sex of a child is determined has also been stated by geneticists. According to Madigan, "The sex cells of males and females have 23 similar pairs of chromosomes but the twenty-fourth pair differs. The ovum has two sex chromosomes alike and they are designated as X chromosomes. The sperm contains one of these X chromosomes and a Y chromosome. When the sex cells ripen and divide, the ovum has only X chromosomes but half the sperm cells have the X chromosome and the other half the Y chromosome. If a sperm cell with a X chromosome unites with the ovum, the child will be a girl ($46+2X$); if a sperm with a Y chromosome fertilizes an ovum, the child will be a boy

**EVERY MAN & EVERY WOMAN
AT CONCEPTION RECEIVED
24 CHROMOSOMES FROM EACH PARENT
OR 48 IN ALL**

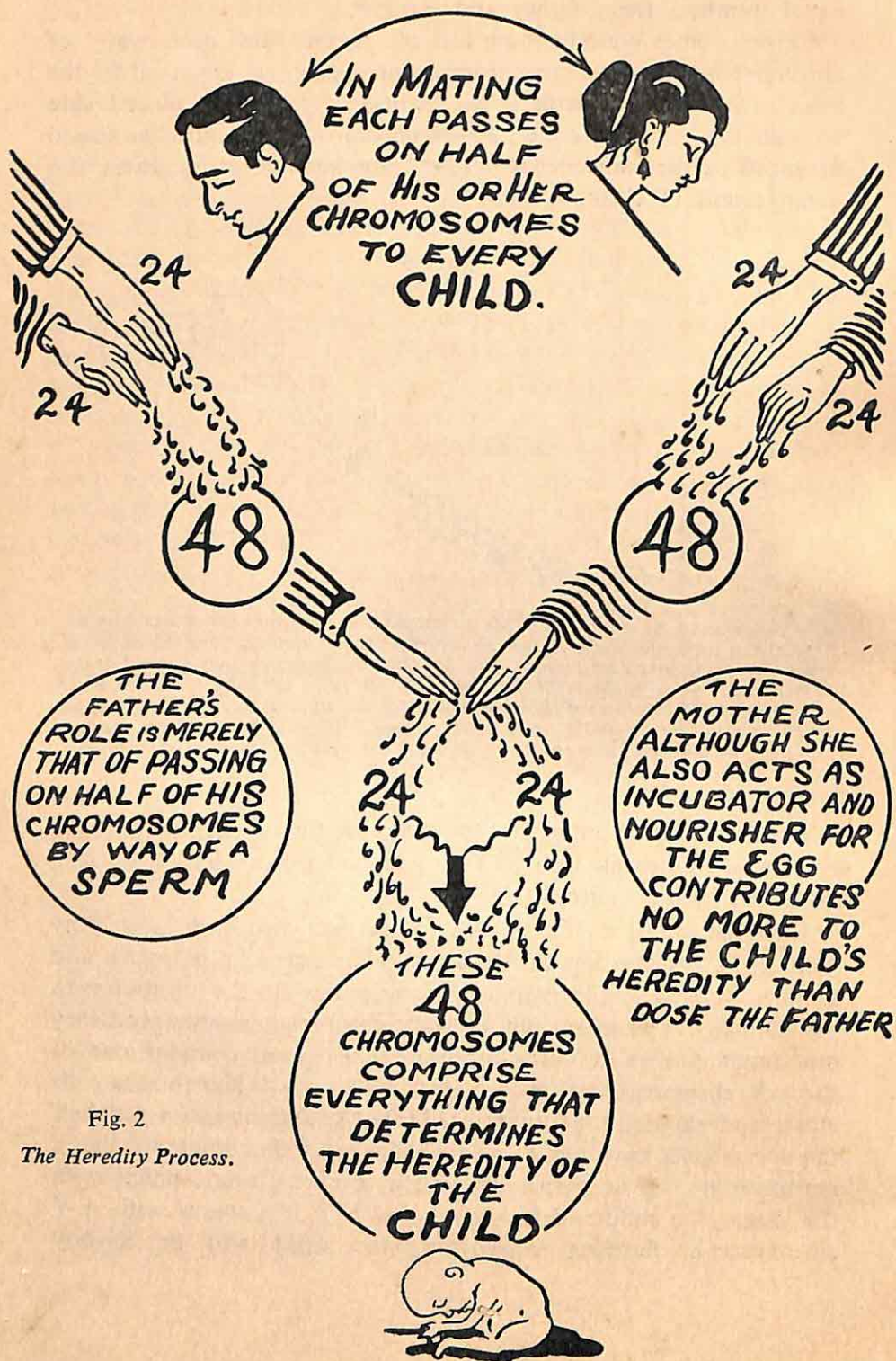
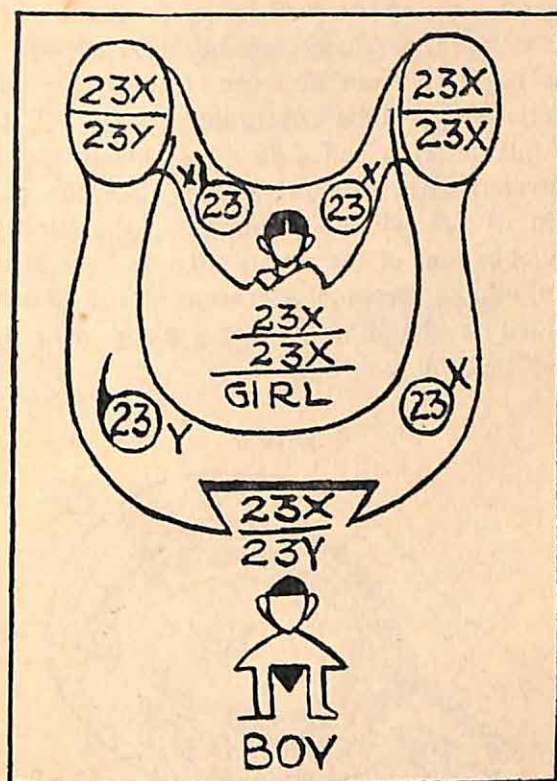


Fig. 2

The Hereditary Process.

($46 + X + Y$). Each child, however, has the full set of forty-eight chromosomes".¹⁰ The following diagram illustrates the process of determination of sex.

Figure 6



Determination of sex.

PHYSICAL DEVELOPMENT

After considering the nature and principles of human growth and development, heredity and environment, let us study the main features of the physical development of a human being. With due acknowledgement to A. N. Kabanov we present below his ideas about this subject.¹¹

¹⁰ Madigan, M. E. *Psychology*, 1957, p. 58.

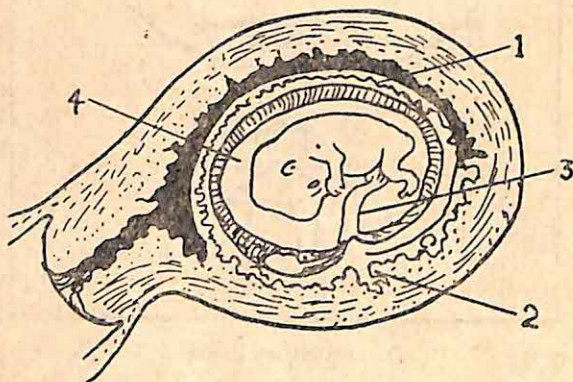
¹¹ Kabanov, A. N. *Anatomy and Physiology of a Human Being*, 1955.

Development within the Uterus

The fertilized egg cell begins to develop rapidly, and is soon transformed into a multi-cellular embryo, the number of cells of which keeps on increasing continually. Three embryonic layers appear: the outer (ectoderm), the inner (endoderm) and the middle layer (mesoderm). During the further development of these layers, the rudiments of the separate organs begin to appear.

Membranes begin to form at once round the embryo even during the initial stage of its development; one of these membranes (the outer one) is called *the villous membrane*, because it is completely covered with little projections, like the pile of velvet. With the help of the villous membrane, the embryo attaches itself to the mucous coat of the uterus (Fig. 7), which, by this time, has swelled out and has become, as it were, slack. The villi become firmly imbedded in the mucous coat, fusing with it, and thus forming *the after-birth*, or *placenta*.

Figure 7

*Human Embryo in the uterus.*

1. Villous membrane; 2. placenta 3. umbilical cord; 4. amniotic fluid.

By means of the placenta, an interconnection is established between the foetus and the maternal organism. A cord—*the umbilical cord*—extends from the body of the embryo to the placenta. Within the umbilical cord there are blood vessels. The contractions of the heart of the embryo force the blood along the arteries of the umbilical cord to the placenta, where metabolism of the maternal blood and the embryonic blood takes place; in this way the blood of the embryo is freed of the products of exchange and

becomes rich in oxygen and nutritive material. The arterial blood returns to the organism of the embryo through a wide vein (Fig. 8).

Figure 8

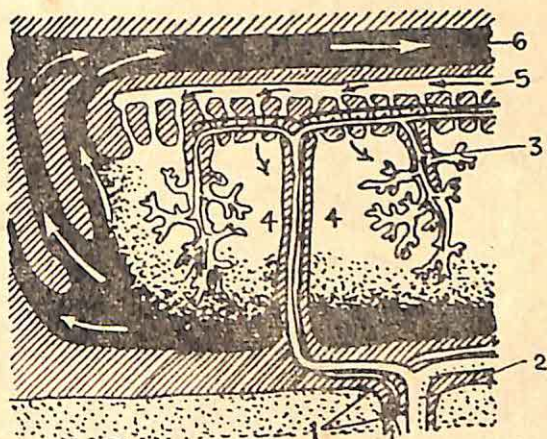


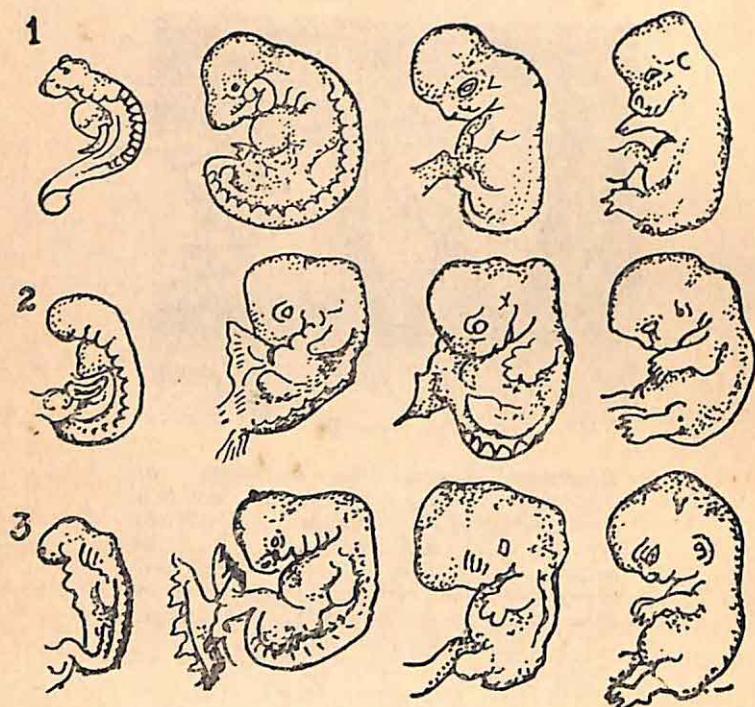
Diagram showing the movement of embryonic blood and of maternal blood in a small section of the placenta: 1. Umbilical arteries; 2. umbilical vein; 3. villi enclosed in a space filled with maternal blood; 4. the maternal blood flows in through the arteries; and 5. out through the viens 6.

The embryo does not take on the semblance of a human being at once. In the early stages of development the embryos of the human being, the monkey, rabbit, hen, and even the fish, resemble each other very much (Fig. 9, see page 30). In the third week of the development of the human embryo, folds appear on either side of the anterior end of the body; such folds likewise appear in the early stage of the embryonic development of all vertebral animals. These are rudimentary *gills*, which, in fish, develop into real gills in animals that live on land, the rudimentary gills disappear later without leaving any trace.

In various periods of the life of the embryo within the uterus, other special features, not characteristic of the human being, also appear, but are not retained in the later stage of development. Thus, at one stage of its development the human embryo has a *tail*, which remains for rather a long time. At another, later, stage,

the whole body, and even the face, is covered with fine hair for short period of time.

Figure 9



Early stages in the development of the embryo of a guinea pig (1), of a monkey (2), and of a human being (3).

The cartilaginous skeleton that appears in the fifth week of embryonic development, and is later transformed into the bones of the skeleton, is also not characteristic of the human being.

The simplest organisms that ever existed on the earth went through stages of gradual development and were transformed into new organized forms of ever increasing complexity. Many millions of years passed before such varied and dissimilar species of animals and plants, which are found in the world to-day, made their appearance. But just as the branches of a tree have their origin in one common stem, so also all living creatures, no matter how much they may differ from one another, arose from one common life stem: they are the numerous branches of a single tree of life.

The science of embryological development—embryology—proves that all organisms, in their transformation from the egg cell to the adult stage, show traces, as it were, of a time long past, and tend to repeat the separate stages in the history of the development of their ancestors.

There is no doubt that the rudimentary gills, found in the embryos of all vertebrates including man, prove that at a certain stage in the development of life, the common ancestors of all vertebrates lived in the water and, like fish, breathed through gills.

It is true that the embryo, in the course of its development, reflects only the most basic features in the organization of its ancestors; but these features, nevertheless, give us an idea of the path of the development and origin of man.

At the end of the second month of embryonic development, the rudimentary gills disappear and points of ossification—the first islets of bony tissue, appear in various parts of the cartilaginous skeleton. By that time the differentiation between arms and legs becomes noticeable, and the whole body of the embryo acquires characteristic human features; at this stage of development the embryo is called *the foetus*. The foetus lies in the membranes enclosing it as if in a spacious bag. *The amniotic fluid*, which is inside the bag (Fig. 7), gives the foetus freedom to develop and also the possibility to move about. Moreover, it serves as a good buffer to receive the first shocks of any accidental jolts or knocks which the mother may get. The foetus grows and develops rapidly so that at the time of birth it may be about 50 cm. long and may weigh about 3 kilogrammes.

In the course of the nine months of its life in the uterus, the embryo does not inhale air, nor does it digest food. All this is done for it by the mother. Therefore, if the kidneys, which remove unnecessary and harmful substances from the blood, do not work well in a pregnant woman, and if she does not take enough nourishing food, or if she does too strenuous work which over-fatigues her organism—all this will tell immediately upon the development and health of the embryo. That is why the concern shown for the health of a pregnant woman provides, at the same time, for the health of the future child.

Special Features of Development

From the very first moment of its birth, the organism of an

infant comes into direct contact with the external environment; it breathes, eats, eliminates waste products. Once the connection with organism of its mother is cut off, the child immediately begins to accumulate, in its blood, carbonic acid, which was formerly eliminated through the placenta. The accumulated carbonic acid irritates the respiratory centre and, as a result, the inspiratory and expiratory muscles begin their alternate contractions. The so-called *first cry* of the child is an indication that respiratory movements have begun.

Together with the first cry come changes in the circulation of the blood. Before birth, when the lungs are in a collapsed state, only a very small amount of blood passes through them. The main stream of blood from the right half of the heart flows, not into the lungs, but directly into the left half of the heart through an opening which, in the foetus, is found between the right and left auricles, or into the aorta by means of a special duct that unites the aorta with the pulmonary artery. The inflation of the lungs, caused by respiration, forces the pulmonary vessels to dilate, and thus the free movement of the blood along the small, or pulmonary, circuit of the circulatory system is provided for.

The opening between the auricles and the duct, connecting the pulmonary artery with the aorta, gradually fuses together and closes up; the continuous flow of the whole blood stream is established, finally, through *both circuits of the circulatory system*—the systemic and the pulmonary circuits.

Growth and Metabolism

At birth an infant weighs approximately 3 kilogrammes and by the end of the first year—about 10 kilogrammes. It is clear that, with such rapid growth, metabolism in an infant must be very intensive. And, indeed, an infant expends, for every kilogramme of its weight, three times more energy than an adult person.

The intensity with which metabolism goes on demands a greater supply of nutritive material and of oxygen. As a result, the organs of respiration and of circulation have a great amount of work to perform.

A new born infant cannot inspire deeply, and the necessary ventilation of the lungs is accomplished by an increase in the frequency of respirations. The number of inspirations per minute during the first few weeks of its life is about 60. Later, the respira-

tory movements become less frequent in proportion as the thorax grows larger and the muscles of the thorax become stronger.

The frequency of the heart-beats of a new born infant is about twice that of an adult person, because the heart muscle of an infant is weak and the blood vessels do not possess sufficient elasticity.

Both the pulse and the respiratory movements of a new-born child differ from those of an adult, not only in their frequency, but also in the irregularity of their *rhythm*, which changes often. This is due to the fact that the nervous regulation of the organs of circulation and of respiration is not stable enough.

As the child grows, the heart becomes larger in size and the heart muscle becomes thicker and stronger.

However, an excessive and prolonged physical load may lead to emaciation of the heart muscle. For this reason one must be very careful not to overload with physical work, not only a small child, but a young boy or girl as well, in order to avoid enlargement of the heart and to prevent any disorders in the work of the heart.

Nutrition

The food of the growing organism should contain a sufficient quantity of nutritive material necessary both for the normal work of the body organs and for their growth. The more intensive the growth, the more proteins and fats the food should contain. Proteins are especially important, as they constitute the chief material for the building up of new cells.

Vitamins are very important for the normal nutrition of the growing organism. An insufficient amount of some vitamins retards the growth and interferes with normal development. Besides those vitamins already known to us, vitamin D, soluble in fats, is absolutely necessary for the organism of a child. Vitamin D is contained in codliver oil, the yolk of egg, butter and other foods.

In certain fats and in many plant foods there is a substance soluble in fats, that is related to vitamin D. This substance is stored in the skin, and when acted upon by the rays of the sun, is partially converted into vitamin D.

By exposing the skin to the action of the sun, one increases the supply of vitamin D in the organism. For this reason, it is

especially important for children to be out in the sun.

An insufficient quantity of this vitamin in food or the complete lack of it, destroys the metabolism of minerals, and the content, especially, of calcium and phosphorus in the bones is reduced, which causes the bones to soften, the teeth to decay, and a number of other disorders. In the early period of a child's growth (especially before it is a year old), the lack of vitamin D in the food is the cause of rickets.

In the first few months of its life, a suckling infant is fed exclusively with maternal milk, the constituents of which fully comply with the requirements of the child and provide it with the necessary amount of proteins, fats, carbo-hydrates, salts and vitamins. The milk contains anti-bodies which safeguard the organism of the child from the harmful action of various microbes. As a result, children fed with maternal milk are less liable to contract many contagious diseases.

In five or six months after birth, the nutrition received exclusively by suckling proves to be insufficient and the mother begins gradually to feed the child with farina, mashed carrots, cranberry jelly and other food; by the time the child is 12 months old, suckling is completely stopped.

Before the child is two years old, its food becomes as varied as that of an adult person; the child may get soup, curds, finely chopped meat, boiled fish, all kinds of porridge and gruel, vegetables and fruit.

Taking into consideration the insufficient stability of the nervous regulation of the heart in children, even older children should avoid the use of stimulating drinks—wine, strong tea or coffee.

The Bony-muscular System

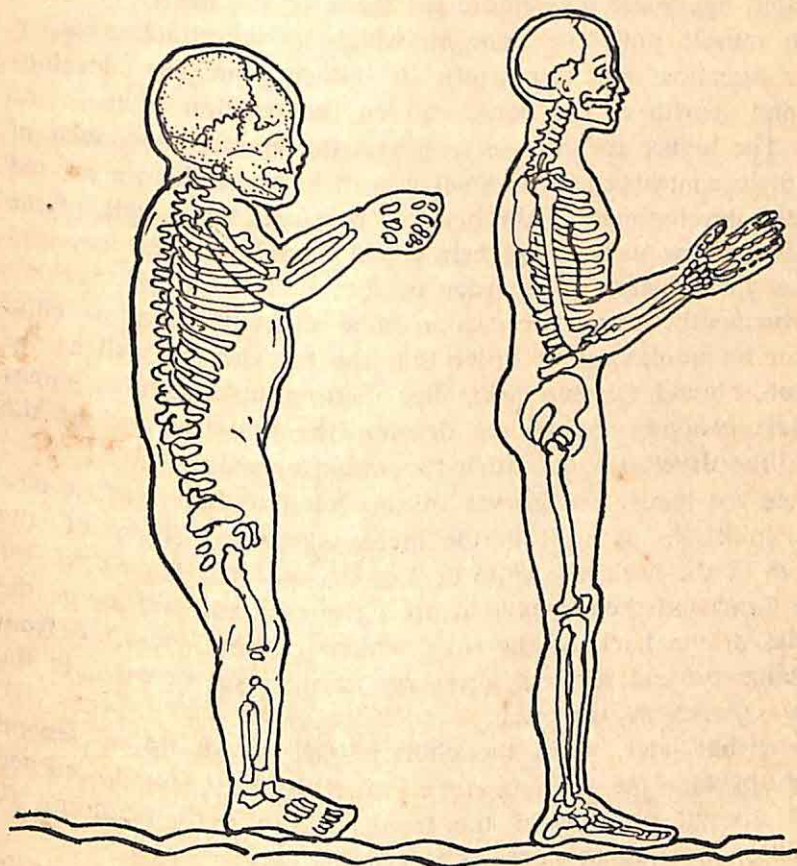
The bones of the skeleton develop slowly and gradually (Fig. 10, see page 35). At birth, the central part of most of the long bones consists of bony tissue, but the ends of the bones remain cartilaginous for a long time. Thus, the first islet of ossification appears in the lower end of the humerus only in the third year of the child's life.

The ossification of the skeleton is completed at about the age of 25.

The skeletal muscles of an infant are very poorly developed and are not capable of making prolonged contractions.

The strength of the muscles increases gradually, and the movements become more and more coordinated. At the age of 6 or 7, the child has a sufficiently free control of its muscles and can

Figure 10



Skeleton of a new-born child and that of an adult.

easily learn to perform many gymnastic exercises, which require ability in balancing the body. However, long and intense strain of the muscles is still very difficult for a child.

School age marks the beginning of a period of intense growth of the muscles. At the age of 6, the skeletal muscles make up about 22% of the weight of the body; but by the time the boy or girl is 16, these muscles compose 35% to 40% of the weight, the same as in adults.

Boys and girls of the age of 12 to 15 are capable of performing the most varied kind of work, no matter how complex and fine the coordination of the movements required by such work may be. However, even if the muscles are well developed and strong, too prolonged and too intensive a strain should be avoided at that age, as it may injure the work of the heart.

Each muscle pulls the bone to which it is attached in a definite direction, and thus exerts its influence on the development and growth of the bone, and on the position of the bone slats. The higher the muscle tone and the greater the power of the muscle contractions, the greater will be the influence exerted upon the development of the bone. Therefore, the growth of the muscles and the increase in their activity accelerate the development of the skeleton and harden it.

Consequently, plenty of motion is a necessity for a child and for an adolescent in order that the muscles, as well as the skeleton, should develop normally. Setting up exercises, games of sport, walking excursions develop the muscles and at the same time develop and harden the whole organism.

There are hardly any curves in the spinal column of a new born child. As a result of the increased tension (tone) of the muscles of the neck, the child at 2 or 2½ months, begins to lift up its head and then to hold it up. The constant pull upon the muscles at the back of the neck which prevents the child from dropping its head forward, gives rise to a curve, or arch, in the spinal column at the neck.

Somewhat later, when the child is able to sit up, a second curve appears—the *thoracic curve*; when the next step is reached—the upright position of the trunk of the body (standing or walking), the *lumbar curve* is developed.

However, the curves of the spinal column easily change in the course of time—depending upon the posture of the body. Thus, a bent-over position will greatly intensify the thoracic curve and diminish the lumbar curve. If the carriage of the body is such that the trunk is inclined to one side, a side curve will appear. Frequent and prolonged maintenance of the body in an incorrect posture will produce habitual abnormal curves of the spinal column, which will gradually become more and more fixed, and turn into a diseased condition—curvature of the spine.

At school age, and especially after the age of 10 or 12, when

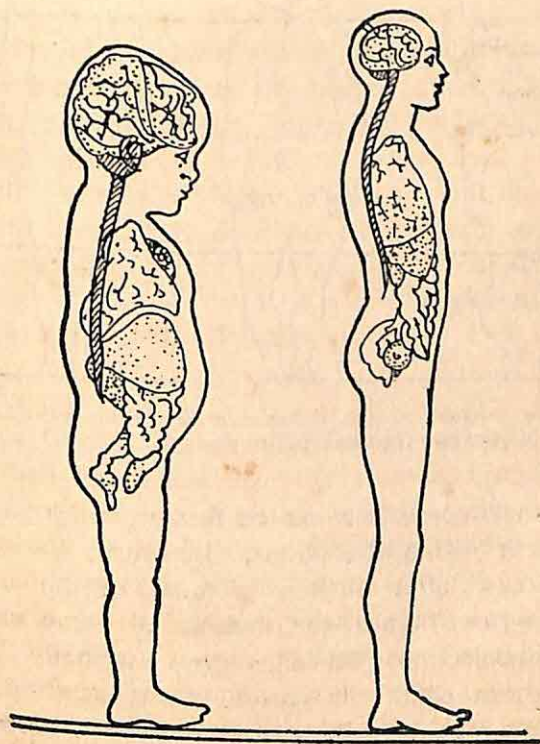
rapid ossification of the skeleton is going on, a curvature of the spine that has developed cannot be corrected and has a bad effect upon the general physical development, the work of the organs of respiration and even on the working capacity.

For this reason it is very important to pay attention to correct posture while working. It is not less important to maintain good posture when standing and walking also.

The Nervous System

The nervous system absolutely takes part in all of the processes that go on in the organism. The coordinated reactions of the whole organism, as well as the work of each separate organ, depends upon the degree of development of the nervous system. There is, therefore, nothing strange in the fact that, at

Figure 11



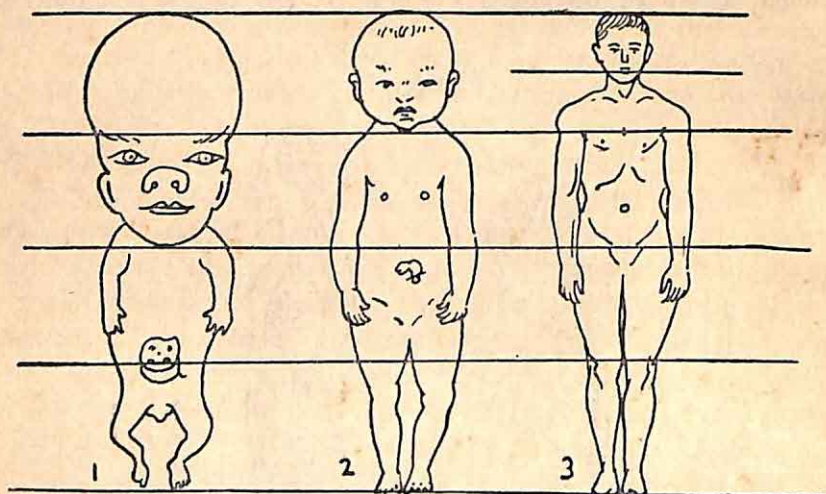
Size of the brain in relation to the height of a newborn child and of an adult.

the moment of birth, the nervous system is already formed to a considerable extent.

The weight of the brain of an adult person is about 2% of the weight of the body, but in a new-born child it composes 12% to 14% of the weight of its body (Fig. 11, see page 37). By the time the child almost reaches school age, the weight of the brain is not less than 80% of the weight of the brain of an adult.

The development of the brain corresponds to the growth of the skull. The height of the head of an adult person is $\frac{1}{8}$ of the height of the whole body, but in the new-born child it is $\frac{1}{4}$ (Fig. 12).

Figure 12



Changes in the proportions of the body during the process of development: (1) embryo of two months; (2) a new-born child; (3) an adult.

Evidently, new nerve cells can be formed only in the period of development within the uterus. In other words, the size of the brain increases after birth as a result of the growth of the nerve cells, and not because the number of nerve cells increases. The tree-like projections (dendrites) grow especially fast.

In a new-born child, the cortex of the cerebral hemispheres functions very weakly, although conditioned associations may already be formed. Gradually, the movements become not only more varied, but more expedient, in proportion as the correspond-

ing parts of the brain develop. This shows that the cerebral cortex takes an ever-increasing part in motor reactions.

The building up of conditioned reactions, chiefly food reactions, begins in the first few weeks of a child's life. Very soon defence conditioned reflexes appear: the child cries, and jerks away its arm when only one signal of an unconditioned stimulus is used, for example, if somebody threatens to strike it on the hand. By the end of the first year, conditioned associations with speech stimuli have been formed in the cerebral cortex.

The development of the cortex of the cerebral hemispheres (the growth of the nerve cells and their projections) continues in the course of many, many years. The associations between the various cells of the cerebral cortex increase in number and in complexity from year to year. In proportion as the associations increase, the higher nervous activity of the child increases in complexity. However, up to adolescence, the cells of the cerebral cortex still have a tendency to become quickly exhausted and to break down.

The processes of excitation and of inhibition irradiate rather easily in the cerebral cortex of a child and of an adolescent. This accounts for the lower degree of concentrative attention peculiar to children.

In order that the development of the nervous system, especially of its higher division—the cortex of the cerebral hemispheres—should proceed normally, it is of the greatest importance to observe the basic rules of hygiene and, particularly, to organize a regular daily regimen.

The Endocrine Glands

The role of the separate endocrine glands differs at various periods in one's life. Thus, for example, in the first few years of a child's life, the thymus gland, located in the thorax, behind the sternum, is of vital importance for normal growth and development. Later, this gland lags behind in growth; by the time the child is 12 or 15, the gland is much reduced in size; besides, the glandular tissue is replaced, to a considerable extent, by fatty tissue.

The sex glands develop very rapidly between the ages of 12 and 15, and their hormones bring about profound changes in the activity of the whole organism. These changes are not

limited to the appearance of the secondary sexual characters. General changes in the activity of the whole organism, including the cerebral cortex, take place side by side with changes in the voice, the appearance of a hairy growth on the face of the male, changes in the shape of the body. In this transitional stage of growth, adolescent boys and girls lose some of that activity and love of mischief which are so characteristic of pupils of the first classes at school. The attention becomes more concentrated and steady. Perseverance appears. Thus the physical development provides the base for all the mental and psychological activities of the human organism.

CHAPTER 3

EMOTIONAL DEVELOPMENT

One of the educationally significant and important aspects of human growth and development is that of emotional development. It is imperative for the educational psychologist to know the nature of emotions and the conditions under which they find expression, for in the process of learning, emotions play perhaps the most important part. If a pupil is annoyed or becomes anxious when he is taught by a particular teacher or in a given situation, it is desirable for the teacher to be aware of this emotional tension. His efforts should be directed to creating more favourable conditions of learning for the pupil which are satisfying and pleasing. Besides this, the pupil comes in contact with others of his own age as well as those who are either younger or elder to him. In his relationships with individuals of various ages and interests, the pupil either finds satisfaction or annoyance. In other words, the pupil's relationship with others is emotionally toned. It is the quality and nature of emotions in play that determine the pupil's relationship with others in the school and out of the school. The teacher has to be aware of this aspect of emotions of his pupils. The teacher's relation with his own pupils is emotionally coloured. The pupil's emotional responses towards the teacher may range from deep love and affection to complete indifference or even intense hatred. A good teacher is aware of this emotional phenomenon and tries to adjust accordingly.

The pupil's emotional response to the teacher is related to the kind of person he is, and his behaviour towards them. If the teacher has a happy disposition and a healthy personality, if he is helpful, cheerful and sympathetic, if his behaviour towards his pupils is based on understanding, and impartiality, they like him. If, on the other hand, he is easily irritated and shouts at pupils, he is disliked. It is, therefore, necessary for the teacher to look for his emotions and try to express them in a manner which is helpful in the learning-teaching process. In other words, the emotional climate of the class-room should be

conducive to the emotional development of the pupils. It should help the pupil in learning to his full capacities and thus become an individual useful to the society. By this way, the aims and objectives of education are realized in keeping with the interest of the individual as well as the society.

NATURE OF EMOTIONS

Darwin's View

Any discussion of emotional development should take into consideration the nature of emotions. It was Charles Darwin (1809-1882), the world famous British scientist and the author of the theory of evolution, who was perhaps the first in trying to understand the nature of emotions. He published a small book in 1872 entitled *Expression of the Emotions in Man and Animals*. In this book, Darwin propounded the theory that facial expression and postural movements could be traced back to useful actions. According to him, showing the teeth in anger was a relic of the primitive fighting of which biting was a part. Likewise, closing the mouth firmly indicated firm determination. This again was something which our ancestors did in order to indicate their determination. Darwin was the first scientist who devised an experiment on emotions. His experiment was a simple one. He showed pictures of different emotional expressions to several people. He found that the people disagreed to a considerable extent in identifying the emotions depicted in the pictures.

Theodor Piderit

Darwin's point of view was not universally accepted. Theodor Piderit, a German anatomist pointed out that "facial expressions actually help or hinder reception of stimuli by the sense-organs. Wrinkling the nose helps shut out bad smells. Pressing tongue and lips against the teeth gives maximum sweet taste. Dropping the tongue from the roof of the mouth helps avoid bitter tastes. We make these grimaces when smells or tastes are recalled though actually absent. With unpleasant thoughts the mouth screws up as though avoiding bitter tastes."¹ In other words, it is assumed

¹Sargent, Stansfeld S. *Basic Teachings of the Great Psychologists*. New York: Barnes & Noble, Inc., 1947, p. 125.

that when we feel some kind of emotion, it causes physiological changes. If we feel angry, the anger causes reddening of the face and then aggressive behaviour takes place.

James and Lange

But this again was not acceptable to all. William James (1842–1910), the greatest early American psychologist had a different idea about the nature of emotions. Karl G. Lange (1834–1900), the Danish physiologist had also his own theory of emotions which was later amplified by James and became known as the “James-Lange Theory”. In his *Talks to Teachers on Psychology*, William James referred to this theory and explained it. James says, “According to this theory, our emotions are mainly due to those organic stirrings that are aroused in us in a reflex way by the stimulus of the exciting object or situation. An emotion of fear, for example, or surprise, is not a direct effect of the object’s presence on the mind, but an effect of that still earlier effect, the bodily commotion which the object suddenly excites, so that, were this bodily commotion suppressed, we should not so much feel fear as call the situation fearful; we should not feel surprise, but boldly recognize that the object was indeed astonishing. One enthusiast has even gone so far as to say that when we feel sorry it is because we weep, when we feel afraid it is because we run away, and not conversely. . . . Now, whatever exaggeration may possibly lurk in this account of our emotions (and I doubt myself whether the exaggeration be very great), it is certain that the main core of it is true, and that the mere giving way to tears, for example, or to the outward expression of an anger-fit, will result for the moment in making the inner grief or anger more acutely felt.”² Thus James leads to the conclusion and says, “Action seems to follow feeling, but really action and feeling go together; and by regulating the action, which is under the more direct control of the will, we can indirectly regulate the feeling, which is not.”³ The “James-Lange Theory” is further clarified when we understand that bodily changes cause emotion. If there are no changes, there is no emotion. Instead of the sequence, “man sees bear, feels frightened, runs away,” James and

² James, William. *Talks to Teachers on Psychology*. London: Longmans Green and Co., 1899, pp. 199–200.

³ *Ibid.*, p. 201.

Lange offered this sequence : "man sees bear, starts to run, and as a result feels afraid."⁴

The "James-Lange Theory" of emotions lacked real evidence. It was not supported by scientific studies. But since it had a physiological basis, it found support more from the scientists than from others.

Wundt on Emotions

Wilhelm Wundt (1832-1920), the father of experimental psychology, observed that bodily sensations were marked by feeling qualities, and when sensations combined to form more complex states, a certain feeling quality resulted from the total. "This total may again combine with another total, a new feeling resulting from this higher compound. These feeling qualities are arranged not only in patterns, in cross sections of experience in time (the experience at a given *instant*), but in certain *sequences* ; feeling follow certain regular orders, and these regular orders of feelings are called *emotions*. Emotions cannot be understood in terms of mere cross-sections at given moments ; they are characteristic sequences. In rage, for example, there is a characteristic series of feelings, giving a temporal pattern distinguishable from the patterns of other emotions."⁵ Besides describing the nature of emotions, Wundt suggested a "tri-dimensional theory" in place of the traditional classification of emotions. According to him, every feeling has three aspects : unpleasantness or pleasantness, excitement or quiet, and tension or relaxation. A feeling may be pleasant, relaxed, and quiet, or it may be unpleasant, excited, and tense. If not even one of these six experiences was present, there could be no emotion. Edward B. Titchner (1867-1927) tested experimentally this "tri-dimensional theory" and found that his subjects often had difficulty in identifying these three "dimensions" of feeling, in distinguishing between excitement and tension, for example, or between quiet and pleasantness. Titchner discovered that there was only one dimension of pleasantness and unpleasantness and that "tenseness" or "excitement" were organic or muscular sensations rather than feelings.

⁴ Sargent. Op. cit., p. 125.

⁵ Murphy, Gardner. *An Historical Introduction to Modern Psychology*. London: Routledge & Kegan Paul Ltd., 1949 (fifth edition), p. 152.

THEORIES OF EMOTIONS

James-Lange Theory

We have familiarised ourselves with the "James-Lange Theory" of emotions. According to this theory, "emotions are the organic-kinesthetic awareness of the reaction to the original stimulus." Further it was suggested that the order of activity leading to emotional expression was somewhat as follows: (1) the emotionally exciting situation, (2) the physiological reactions, and more particularly the overt behaviour, and finally (3) the awareness of physiological changes. Criticism against this theory was that it lacked scientific evidence. But nonetheless, it created a strong belief in the physiological basis of emotions. It was observed that bodily changes accompanying emotions were significant and they ought to be studied.

The Emergency Theory

W. B. Cannon, one of the well-known physiologists, made a careful and detailed study and put forth a theory, known as *the emergency theory of emotions*. According to this theory, "the emotions of anger or rage is to be described physiologically in terms of the action of the sympathetic nervous system and the adrenal glands. Their function is to put the individual into a condition of readiness to meet some physical emergency. The chief bodily changes viewed from this angle are: (1) the liberation of blood-sugar, the source of energy; (2) the increased activity of the heart; (3) the direction of blood stream away from the digestive organs and to the skeletal muscles, so that (4) fatigue products are carried away more rapidly, and (5) due to the presence of adrenin, the more rapid coagulation of the blood in case of a wound."⁶

Cannon-Bard Theory

Cannon and Bard propounded the theory that "nervous impulses from the stimulus situation go to an integrative centre in the thalamus. From these impulses proceed directly to the brain and in the cerebral determine the nature of emotional experience. Simultaneously, impulses proceed to the affectors and bring about the explicit and implicit behaviour which results from the perception

⁶ Trow. W.C. *Educational Psychology*. Boston: Houghton Mifflin Company, 1950, p. 156.

of the stimulating situation.”⁷ This theory is also known as *The Thalamic Theory of Emotion*, and is directly opposed to the James-Lange Theory. It is based on experimental research and provides objective evidence.

McDougall's Theory

It is desirable to consider here *McDougall's Aspect Theory of Instinct and Emotion*. William McDougall (1871-1938) was an international figure in Psychology. He contributed to every branch of psychology and strongly opposed behaviourism and propounded the purposive nature of behaviour. McDougall's theory is that emotion and instinct are two aspects of the same activity. According to him, an instinct is “an innate disposition which determines the organism to perceive (to pay attention to) any object of a certain class, and to experience in its presence a certain emotional excitement and an impulse to action which find expression in a specific mode of behaviour in relation to that object.”⁸ He lists fourteen instincts with their accompanying emotions in their descending order of definiteness. The list is as follows :

<i>Instincts</i>	<i>Emotional Qualities accompanying the Instinctive Activities</i>
1. Escape	Fear
2. Combat	Anger
3. Repulsion	Disgust
4. Parental	Tender emotion
5. Appeal	Distress
6. Mating	Lust
7. Curiosity	Wonder
8. Submission	Negative self-feeling
9. Self-assertion	Positive self-feeling
10. Gregarious	Feeling of loneliness
11. Food-seeking	Gusto
12. Acquisition	Feeling of ownership
13. Construction	Feeling of creativeness
14. Laughter	Amusement

⁷ Fryer, D.H., et. al. *General Psychology*. New York: Barnes & Noble, Inc., 1954, p. 200.

⁸ McDougall, William. *An Outline of Psychology*, p. 110; quoted by James S. Ross in *Groundwork of Educational Psychology*.

McDougall's viewpoint in regard to instincts and emotions has been criticised by several psychologists, notable among them is James Drever. According to Drever emotion is not essential to the working of an instinct. It appears only when the instinctive expression is inhibited. Defining *instinct*, Drever writes, "Instinct (is) in its original sense 'animal impulse'; hence a general term for natural or congenital impulse; erroneously used in modern times for forms of behaviour, rather than the underlying congenital impulse (behaviour may be spoken of as *instinctive*, but not as 'an instinct'); more or less equivalent to innate or congenital 'drive' or 'need'; actual usages in present day psychology are: (1) the original sense, (2) unlearned complex adaptive response, (3) congenital impulse plus specific emotional excitement."⁹ It would be worthwhile to place here Drever's definition of *emotion* also. "Emotion: differently described and explained by different psychologists, but all agree that it is a complex state of the organism, involving bodily changes of a widespread character—in breathing, pulse, gland secretion, etc.—and, on the mental side, a state of excitement or perturbation, marked by strong feeling, and usually an impulse towards a definite form of behaviour."¹⁰ We may close this consideration of the theories of emotions by pointing out that even today we have no completely accepted theory of emotion.

Definition of Emotion

As there is no one opinion in regard to the theories of emotion, so is the case with the definition of emotion. Some psychologists prefer to regard an emotion as a general state which includes some tendencies to action. According to Valentine, it is better to confine the term *emotion* to "the *feeling-tone* of certain states, though some emotions are undoubtedly closely linked with innate tendencies to act."¹¹ Another definition is that emotion is a "stirred-up state of the organism."¹² Trow's definition of emotion takes into consideration the physiological as well as the psychological aspects of emotion. According to him, "it can be said that emotion is a

⁹ Drever, James. *A Dictionary of Psychology*. Penguin Books, 1952.

¹⁰ *Ibid.*, p. 80.

¹¹ Valentine, C. W. *Psychology and its bearing on Education*. London: Methuen & Co. Ltd., 1953, p. 51.

¹² Crow and Crow. *Child Psychology*. New York: Barnes & Noble, 1953.

complex and diffuse mental experience involving organic and Kinesthetic sensations of varying intensity, oriented toward some external person or object, and having a strong feeling tone of pleasantness or unpleasantness."¹³ Jersild offers a definition of emotion as follows :

The term *emotion* denotes a state of being moved, stirred up, or aroused in some way. Emotion involves feelings and impulses, and physical and physiological reactions. These feelings, impulses and physical components may occur in an almost unlimited variety of mixtures and gradations.¹⁴

Having acquainted ourselves with nature, theories, and some definitions of emotion, it is worthwhile to review some of the studies which have been devoted to the expression of emotions. It is by an understanding of and insight into the expression of emotions that the teacher can find out about the emotionality of his pupils.

Expression of Emotions

Charles Darwin was perhaps a pioneer in experimenting with the expression of emotions. Somewhat on Darwin's lines, Herbert S. Langfeld, an American experimental psychologist, devised an experiment in which the subjects were required to recognize emotions expressed in 105 photographs posed by an actor. The results indicated that only 58% of the best subjects were correct and the worst subjects judged only 17% correctly. The correctness in this study meant judging the intended emotions of the actor. It is a pertinent question to ask as to how far the actor could be considered correct in expressing the emotion, which he intended to express. Assuming that the actor was expert in expressing any type of emotion correctly, Langfeld was led to the conclusion that his subjects judged emotions wrongly and were uncertain of their judgment. Studies by Edwin G. Boring and Titchener were devised differently. They prepared different expressions of the mouth, nose, eyes and brow which could be combined to create a variety of emotional expressions. The preparation of these expressions of mouth, nose, eyes and brow were so cleverly done that even when

¹³ Trow, W. C. *Educational Psychology*. Op. cit., p. 151.

¹⁴ Jersild, A. T. "Emotional Development" in Skinner (ed.) *Educational Psychology*, op. cit., p. 53.

the parts were assembled at random, they could express almost real emotional states. In such a study, the result was that subjects were suggestible in their judgment of facial expressions. In other words, it is difficult to judge expression of emotions objectively.

Besides the use of facial expression in recognition of emotions, interest was aroused to find out the most expressive part of the face. Knight Dunlap devised a test with a view to finding out whether the eyes or mouth expressed more emotion. In this test, Dunlap cut portrait photographs in half, crosswise, then put together the parts in a manner that the eyes of a face expressing pain, for example, were put along with the mouth of the same face expressing pleasure. The finding was that mouth was more expressive of emotion than the eyes. Thus the saying that the "eyes are the windows of the heart" was belied by this study.

Another interesting study of expression of emotions was made by Antoinette Feleky. The subjects in her study were one hundred persons and they were asked to identify emotions in 86 photographs posed by an actress. It was discovered that the highest agreement was 52% and that there was wide variation in judgment. For example, one picture intended for surprise and another for hate got a variety of judgments.

Again the same objection as was raised for the study by Langfeld, could be raised for Feleky's study. In order to avoid this kind of objection Carney Landis took pictures of faces with real expression of emotions. In other words, Landis did not ask any actor or actress to depict emotions. Thus he had pictures of faces in real emotional situations. With the help of these pictures, he found that there was no special type of facial expression for pain, surprise, disgust, or other emotional states. The only common expression of emotion was a smile. The significance of this study lies in the fact that it was proved conclusively that "no specific facial reaction characterizes a given emotional state."

Expression of emotions has been studied by some other methods as well. Assuming that voice also expressed emotions, Mandel Sherman studied the emotional quality in the vocal expression of new-born babies. He found that in new-born babies, cries of pain, hunger, fear and anger cannot be differentiated. It is true though, that older children and adults generally express their stronger emotions such as of anger, by speaking loudly.

Besides vocal expression of emotions, psychologists have been

interested in the hand gestures as a means of expressing emotions. Leonard Carmichael and his associates asked an actress to express emotions by movements of the hands, and they were judged fairly well. The judges told that in their judgement of emotions, they recalled their past experiences and situations in which such gestures occurred. In other words, if the judges were unacquainted with situations in which hand-gestures expressed certain emotions, they would have failed in their judgement. Commenting on the lack of agreement in the judgement of expression of emotions, Trow rightly remarks that "the responses of the whole body musculature for the different emotions are fundamentally alike, though the faith in the existence of real differences is not unjustified." A second reason, in the case of posed photographs, according to Trow is that "there is no assurance beyond the word of the person photographed that the pose exhibits the emotion intended." The third reason for the lack of unanimity in the discrimination of the different expression of emotions, according to Trow, is that the "emotional response is only a part of the total situation in connection with which it can ordinarily be interpreted."¹⁵

Development of Emotions

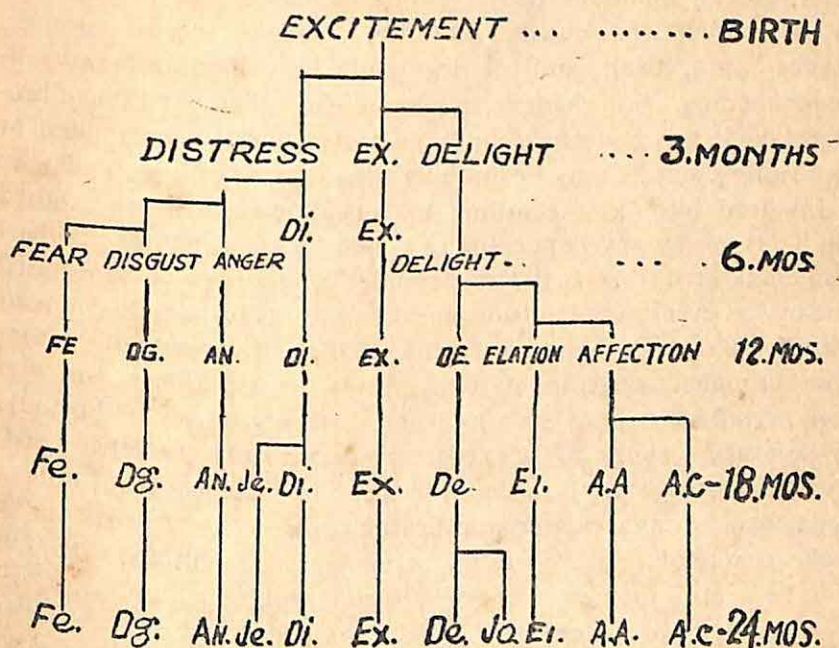
How emotions develop, is the important question to consider. Do emotions develop in children as they grow up, or do they learn them? These questions have led to the studies of the development of emotions. One of the most well-known studies is by K. M. B. Bridges. In this study¹⁶ a large number of babies were observed in a fondling home. The age-range of these babies was from birth to 24 months. It was observed that the new-born infants showed only excitement. In the three-month-old infants emotions of distress and delight could also be observed along with general excitement. Within the period of next three months, Bridges discovered that distress was differentiated into fear, disgust and anger. By the age of 12 months delight was differentiated so that elation and affection were added along with it. Between the period of 12 and 18 months, children showed jealousy and affection for adults and between 18 and 24 months, delight was further differentiated

¹⁵ Trow, W. C. *Educational Psychology*. Op. cit., p. 165.

¹⁶ Bridges, K.M.B. "Emotional Development in Early Infancy", *Child Development*, 1932, Vol. 8.

and joy appeared. All these developments in emotions are shown in the diagram below :

Figure 13



Approximate Ages of Differentiation of Emotions in Early Childhood.
 (From Bridges, K.M.B., "Emotional Development in Early Infancy",
Child Development, 1932).

Though Bridges discovered significant results pertaining to emotional development in early infancy, it is important to bear in mind, that these results are not the final word. As a matter of fact, in this study, Bridges has presented her own findings and does not claim to represent the universal viewpoint, as no one psychologist can. This is due to the fact that however experienced a psychologist may be, he is likely to be subjective in his reading of emotions in infants. Thus different psychologists will "read" differently the emotional behaviour of infants. This diagram represents simply the observations of a psychologist who observes general excitement in the newborn infants and thus differentiates various emotions with the growth in children. What is more important to know is how emotions are aroused and stimulated. We shall have

to realize that individual differences play important part in stimulation of emotions.

Arousal of Emotions

Arousal of emotions depends upon a number of factors such as the individual's health, attitudes, interests, needs, motives, desires, goals, ideals, and the degree of his self-control and self-understanding. For example, a person who believes in human brotherhood is upset when he finds people engaged in communal or race-rioting, but he may do nothing till someone of his own family is involved into it. According to Jersild, emotions are aroused "in a person by any happening in which he has (or thinks he has) something at stake. It is also possible for emotions to be aroused due to "an event in the outside world or within the individual himself which, on the one hand, threatens, or thwarts, or actually injures him through damage to his body, pride, or self-esteem. In that case *negative* emotions such as fear or anxiety, anger or hostility, or complex feelings of self-contempt occur. On the other hand, *positive* emotions may be aroused by any circumstances that furthers, augments, or enhances the gratification of a person's needs or the realization of his goals."¹⁷ In this statement of Jersild, due attention is to be paid to the nature of positive and negative emotions. Positive emotions are those which help the individual in keeping a healthy outlook on life and a happy disposition in dealing with problems of life. On the other hand, negative emotions are destructive and lead to maladjustment.

Other factors which contribute to arousal of emotions are the attitude of a person and the nature of circumstances. For example, it is possible for a person to be afraid of darkness when alone and not be affected by it when in the company of other. In other words, *a stimulus which arouses emotion can have different degrees of effect.* Fear of darkness cannot be aroused always to the same extent in all persons or in the one person at all times. *The intensity of aroused emotion will depend upon the attitude of the person or persons concerned.* Another significant fact about it is that the same stimulus may arouse different emotions under different circumstances. For example one may feel happy when his friend addresses him by his first name, but may become angry when someone in

¹⁷ Jersild, T. S. Op. cit., pp. 53-54.

general addresses him like that. Thus the same stimulus, i.e., the first name arouses different emotions in different circumstances. The final important thing about the arousal of emotions is that emotions remain aroused so long as the stimulus responsible for it, remains in attention of the person emotionally aroused. This is significant educationally. If a child is afraid of a teacher, it is desirable to remove the child from the presence of that teacher for so long as the teacher remains in the attention of the child, he (the child) will experience emotion of fear.

Developmental Patterns of Emotions

As the child develops physically, he acquires more and more understanding of his social environment and human relations. He is able to realize that certain types of behaviour lead to satisfaction and pleasure and others lead to annoyance and unpleasantness. With a view to having emotional satisfaction and pleasure, the developing child adopts a style of life and patterns his behaviour accordingly. As he develops and matures, he learns to direct his attention upon such persons and objects which serve as stimuli for positive emotions. If the child likes and loves his teacher, he begins to pay full attention to his mode of walking and talking and to other patterns of his behaviour. The child does so with a view to imitating his beloved teacher. Thus imitation's role in the developing patterns of a child's emotions is very important. The child who has imitated his emotionally well-behaved parents, is also emotionally well-behaved and well-balanced. Likewise the child of a short-tempered parent is likely to be short-tempered. But again it is worthwhile to bear in mind that individual differences do occur in such cases as well.

Another angle to look at the developing patterns of emotions is provided by the study of differences between the child's and the adult's emotions. Generally the child and the adult will have the same emotional response to a given stimulus. But their emotional responses differ in intensity and in the nature of expression. For example, the gravity of a famine may be experienced more by the adult and less by the child. Likewise denial of a wish of the child by the parents may upset him while the adult may accept the denial of his work quietly. In other words, differences in the child's and the adult's emotion could be seen in terms of emotional control. The normal adult has learned to control his emotions according to

the patterns of his culture. It is through education that the child is taught to express his emotions in a socially approved manner.

Studies by Gessell and some others have indicated that with the progress in age and experience differentiation and integration of emotions take place. In other words, as the child increases in age and experience his emotional responses become less violent and more subdued. It has been observed that during preschool years, there is a decline in the frequency of a child's crying and in open expression of fear and anger. Other factors which lead to the decline of open expression of emotions are :

- (1) Use of language and other symbols for the subtle expression of feelings.
- (2) A good deal of pressure from parents, teachers and other elders.
- (3) Realization by the child that violent expression of emotions does not pay.
- (4) Desire to be accepted as a "grown up" individual among his peers.

It has been observed that by the age of seven, children are able to disguise their emotions to a great extent. This makes difficult to understand children and their problems. It is by means of right type of education that the children can be taught to be forthright in expressing their feelings and thus get over the problem that bothers them. It is a common knowledge that many mental illnesses are caused due to repression of emotions. When a desire is denied the individual feels frustrated and if he is emotionally immature, his frustration becomes so severe that it causes more difficulties. That is why in every culture, there are ways to get over frustration. The social philosophy and the value-system prevalent in a society do provide some "safety-valves" to steam off frustrations. Thus the developmental patterns of emotions are also culturally determined. In every culture, there are certain levels of aspirations. If in a culture, the child is required to have a very high level of aspirations, it leads to a sense of failure even if the child is able to secure marks which are considered enough for the child of another culture where the level of aspiration is not so high. In other words, the expectancies and aspirations built up in the child are a kind of "inner tendencies" which influence emotional responses.

Therefore, it is desirable for the child to learn the accepted patterns of emotional responses. In this connection it is appropriate to present briefly two well-known experiments dealing with learned emotional reactions.

Watson's experiment was planned around Albert, an eleven-month old healthy baby. Albert was living in the hospital and it was observed that loud sounds and removal of support aroused fear in him. A white rat was presented to Albert along with a loud sound as an unconditioned stimulus to fear. After this was done for seven times, the white rat became a conditioned stimulus to fear reactions with the result that Albert cried and crawled away from the rat as soon as he saw it. Before this experiment Albert was afraid of loud sound and not of a white rat. After conditioning, he became afraid of the white rat also.

Another experiment was made by James¹⁸ with a child named Peter. The purpose of this experiment was to determine whether it is possible and safe to uncondition undesirable responses. Peter was about 3 years old and became conditioned to fear a rabbit. The unconditioning was done as follows. Each day the fear stimulus (rabbit) was brought closer to the child as he ate his meals. The rabbit was removed when the child cried or asked that the rabbit be removed. After 120 combinations of the two stimuli, Peter patted the rabbit, and thus his fear was unconditioned.

Emotions and Education

Emotions are involved in learning and they play definite part in the adjustment of the individual. But so far due attention has not been paid to emotions in relation to education. In this connection it is important for the teachers to realize that emotional responses are efforts toward adjustment and if these efforts are thwarted, the child feels frustrated and his educational growth suffers. It is, therefore, desirable for the teacher to understand the meaning of emotional responses which children make. In other words, the teacher should try to understand the real reason which lies behind the overt expression of emotions. This is not easy to do, for emotional responses are complex. The complexity of emotional responses is created by a number of outer circumstances

¹⁸ James, M.C. "A Laboratory Study of Fear: The Case of Peter", *Pedagogical Seminary*, 1924, 31 : 308-315.

and inner tendencies. Therefore the teacher should not be in a haste while understanding emotional responses. He is able to understand emotional responses of his pupils, if he understands his own emotional responses. In other words, the teacher ought to be free from subjective judgment and should not mix up his own emotions while understanding the complex nature of emotions of his pupils.

As has been shown by the experiments of Watson, and James, emotional responses are modifiable. Full advantage should be taken of this fact and such school practices as produce negative emotions and tensions in the minds of pupils should be changed or modified. The educational programme should take into account the capacities of the pupils and avoid frustrating experiences. Trow,¹⁹ has aptly observed that the "task of aiding in the emotional adjustment of pupils to their social environment has come to be recognized as one of the chief function of the school." It is one of the sacred duties of the teacher to help the child in attaining emotional maturity by treating him fairly and justly and by giving him love and affection of a father or an elder brother.

¹⁹ Trow. W. C. *Educational Psychology*. Op. cit., p. 183

CHAPTER 4

SOCIAL DEVELOPMENT

Nature of Social Development

One of the purposes of education is to help the growing child in his socialization. The process of socialization enables the child to acquire his social status according to his age and perform the corresponding role. This process starts early in infancy. "Beginning in the nursery, the process of socialization continues throughout life. Among other things, what must be learned is : the power to inhibit, or to moderate, the expression of unacceptable needs; the ability to transfer cathexis from a prohibited goal-object to an acceptable substitute; the habitual and automatic use of a large number of approved action patterns (methods, manners, and emotional attitudes); and the ability to adopt the schedules (to do things at the proper time, keep appointments, etc.). It is assumed that, having acquired these abilities, the average person will be capable of establishing satisfactory interpersonal relations within the legal and conventional framework of society. When the child begins to behave in a predictable, expected manner it is well on the road to being socialized."¹ Thus the individual child begins to acquire his social self. He learns to be patient and tries to have harmony between his self-interests and social interests. The task of education is to facilitate this harmony by providing desirable social environment and social experiences. In other words, education should make the complex process of socialization as harmonious and harmless as possible. This will be possible only when the individual growth and social growth do not conflict with each other. As a matter of fact both these growths should be complementary to each other, for the individual growth lays the foundation of social growth and provides the basic structure for social life and behaviour. In other words, social development of the child should take place under the general framework of his growth and development. It should be pro-

¹ Kluckhohn, Clyde and Murray, H. A. (Ed.). *Personality in Nature, Society, and Culture*. New York : Alfred A. Knopf, 1949, p. 25.

gressive rather than abrupt. This point has been well emphasized in the following statement:²

Two essential aspects of living organisms are the need to change, to grow and differentiate toward greater complexity, and the need to integrate and to maintain equilibrium and wholeness, to consolidate our gains. But this latter never means the static "adjustment" of the well-oiled functioning of the machine in good working order. Rather we must think of the individual's adjustment as a process in which, through interacting with his environment, he deals with his adjustment needs continually. He behaves in certain ways in order to maintain equilibrium or to relieve the tensions that come from imbalance.

Stages of Social Development

In the light of the above, it needs no effort to emphasize the importance of social development of the child. In every culture, there is a process of socialization for making children socially adjusted and efficient.

It has been observed that like other areas of development of the child, social development is also marked by certain stages. It is due to the fact that capacity to make social responses develops along with learning and maturation. As the child grows in age and experience, his pattern of social responses begins to differentiate and integrate. It has been rightly suggested that the two processes of differentiation and integration are also inherent in the various stages of social development of the child. It is desirable to note here that along with the variety in the stages of social development, we have to be aware of their origin. In this connection observations made by Montagu³ are meaningful. According to him, "the prolonged period of infant dependency in man produces interactive behaviour of a kind which within the first two years of the child's life determines the primary pattern of his subsequent social development. It is within this period

² National Society for the Study of Education, "Learning and Instructions, Forty-Ninth Yearbook, Part I. Chicago: University of Chicago Press, 1950, p. 156.

³ Montagu, M.F.A. "The Origin and Nature of Social Life and the Biological Basis of Cooperation". *J. Soc. Psychol.*, 1949, 29, 267-283.

that he learns to love others; the mother who has consistently, intimately, and lovingly attended to his needs, the father, his brothers and sisters and whoever else has participated in the process of satisfying his needs." Herein lies the source of child's social development.

Coming to the stages of social development, it has been observed that during infancy crying, smiling and eye movement in response to others are indicative of social behaviour. After the age of three months, crying and smiling begin to have social significance. By the age of five months smiling becomes a typical response even without a stimulus. At about the age of six months, the baby may show fear of strangers. But this rarely happens. By the time, the baby completes the first year of his life, he shows more meaningful signs of social behaviour. At this stage, the child may be able to understand certain commands, or names of certain objects. Another tendency to be noticed is that he is self-centred. He is the central figure in his own world and would like others to believe so. But the process of socialization enables him to realize that there are other individuals in his "world" who are also significant and who also need his attention. As the child grows in age and experience, he learns this lesson more and more.

At the nursery school stage, the child is more conscious of his self-importance. He indicates his self-importance by expressing his right over some of the toys, books or other material in the school. Other children also do the same thing. This leads the child to realize that he cannot claim everything for himself and that there are other children who also want those things as much as he does. Thus he begins to share and cooperate in play and other group activities. Participation in group plays of the school is easy for those children who have played with other children living in the neighbourhood.

Social development during the primary school stages, takes place with the help of social activities organized by the school. The child becomes aware of his social relations with other children and teachers in the school. His awareness of others many a time is influenced by his interest or the motive at the moment. If the teacher is sympathetic and tries to understand the child, he is liked and loved. They sometime take the place of parent for the child. In other words, the teacher pupil-relationship at the primary stage becomes affectionate. Studies have been made more particularly

in the U.S.A., as to what children liked or disliked most in their teachers. As the answers of small pupils were not reliable and even the older pupils were afraid of expressing their true opinion, some investigators asked adults to tell on the basis of their school memories as to what they liked or disliked most in their teachers. The results indicated that the most liked teachers were friendly, kind, fair and just in discipline and had a sense of humour. In another study by Hopkins⁴ over 2600 preadolescent and adolescent boys and girls ranked the ten qualities of their teachers as given below :

BOYS		GIRLS	
<i>Adolescent</i>	<i>Preadolescent</i>	<i>Adolescent</i>	<i>Preadolescent</i>
1. Fairness	Manners	1. Fairness	Manners
2. Cleverness	Cleverness	2. Manners	Cleverness
3. Enthusiasm	Strictness	3. Sympathy	Fairness
4. Manners	Good at sport	4. Cleverness	Sense of humour
5. Sense of humour	Sense of humour	5. Sense of humour	Sympathy
6. Sympathy	Sympathy	6. Enthusiasm	Good at sport
7. Appearance	Fairness	7. Appearance	Appearance
8. Good at sport	Appearance	8. Good at sport	Enthusiasm
9. Strictness	Enthusiasm	9. Dignity	Strictness
10. Dignity	Dignity	10. Strictness	Dignity

As the children grow in social maturity, their area of social relations widens and it assumes various form. For example, it may be reflected in their liking for a subject if it is taught by a teacher whom they like very much. There is another aspect of this phenomenon. Sometimes pupils like those teachers who teach their most liked subjects. A study by Pritchard was devoted to finding out the relative popularity of secondary school subjects

⁴ Hopkins, K. D. "Punishment in Schools", *B. J. Exp. Psychol.*, 1939, p. 9.

at various ages. 974 pupils were asked the following questions :

- (1) Have you put down as your *best* liked subject a subject which is taught by the teacher you like best?
- (2) Have you put down as your *least* liked subject a subject which is taught by the teacher you like least?

The results indicated that :

1. Best-liked subject taught by best-liked teacher, reported by 249 pupils.
2. Best-liked subject not taught by best-liked teacher, reported by 714 pupils.
3. Least-liked subject taught by least-liked teacher, reported by 146 pupils.
4. Least-liked subject not taught by least-liked teacher, reported by 828 pupils.

The conclusion of this study was that the popularity of the teacher was not the main consideration in the selection of subject by the pupils.

In the social development of the child, the importance of peer-group has to be realized. It is true that the quality of parent-child relationships as well as teacher-pupil relationships make the child aware of himself and his relations with others. In other words, the child's social relations expand his social environments. He learns rules of conduct. His negativism subsides and he gains parental approval by following fixed rules. His social growth and development find further stimulus in peer-groups. In play-groups, the child learns to play social roles and accepts rules of the games. Thus it is important to consider stages of social development in relation to peer-groups. How do children select their friends, what are the types of their fights, how do they cooperate and compete among themselves are all important.

Children's Friendship

Friendship among children is generally on the same basis as among adults. As they grow in age and experience normally they are able to form friendship among themselves in terms of their age, intelligence, sociability, etc. It is quite natural for a

child to become friend of another child even in a chance meeting. But this is possible when the children concerned have ability to make friends. In other words, timid and shy children fail to win friends. That is why parents and teachers should make efforts in enabling children make friends. If that is not done, a child may remain lonely, or he may do clumsy things to attract attention and to gain social status. In case of children of superior intelligence, it is possible that they may fail in forming friendship on account of awareness of "excessive" superiority. Some parents create this 'superiority complex' in their children with the result that a superior child feels difficulty in mixing with other children.

Studies of friendship among children have been made. The investigators have been aware of the nebulous quality of the concept of friendship. They realize that there are various factors in friendship ranging from "parasitic social attachments to social symbiosis." Nonetheless studies have been made of children's friendship. Horrocks⁵ and Thompson⁶ made a study of the friendship fluctuations of rural and urban boys and girls. There were 905 rural and 969 urban children ranging in age from eleven to eighteen years. The findings indicated that there was greater stability in friendship with increasing age. The investigators stated, "it would appear that one of the characteristics of the mature person is his ability to maintain relatively permanent friendships with his associates." Another study by Austin and Thompson⁷ was devoted to finding out the basis on which children select and reject their best friends. About 400 sixth grade children were selected for this study. A two-week interval of time was given to these children. In the beginning these children chose their three best friends and after two weeks, they were asked either to retain these friends or reject them. It was discovered that after the two-week interval of time, 40 per cent of the children made no changes in choosing their three best friends and 5 per cent of the children changed all three of their best friends. About 30 per cent made

⁵ Horrocks, J.E. & Thompson, G.G. "A Study of the Friendship Fluctuations of Rural Boys and Girls", *J. Genet. Psychol.*, 1946, 69, 189-198.

⁶ Horrocks, J.E. & Thompson, G.G. "A Study of the Friendship Fluctuations of Urban Boys and Girls", *J. Genet. Psychol.*, 1947, 70, 53-63.

⁷ Austin, M. C. and Thompson, G. G. "Children's Friendships: A study of the basis on which children select and reject their best friends." *J. Educ. Psychol.*, 1948, 39, 101-116.

only one change and two changes in the selection of three best friends were made by about 16 per cent children. Reasons given for choosing friends were as follows :

<i>Items</i>	<i>No. of Responses</i>	<i>Per Cent of Total</i>
1. Frequent association	252	11.3
2. Similarity of interests and tastes	247	10.9
3. Cheerful	286	12.2
4. Kind	177	7.9
5. Cooperative	128	5.7
6. Generous	128	5.7
7. Honest	103	4.6
8. Even-tempered	102	4.5
9. Polite	94	4.2
10. Loyal	72	3.2
11. Agreeable	63	2.8
12. Modest	49	2.2
13. Obedient	6	.2
14. Brave	3	.1
15. Physical appearance	93	4.1
16. Intelligence	29	1.3
17. Skilful in games	23	1.0
18. Active	5	.2
19. Chronological age	4	.2
20. Nice & friendly	260	11.5
21. Unclassified	132	5.9

Reasons given for changing friends over a two-week interval were as follows :

<i>Items</i>	<i>No. of Responses</i>	<i>Per Cent of Total</i>
1. Lack of recent contact	48	14.5
2. A recent quarrel	36	10.9
3. Incompatibility (lack of harmony)	26	7.9
4. Conceited or bossy	24	7.3
5. Disloyal or underhanded	20	6.1
6. Bullying or quarrelsome	17	5.2
7. Dishonest or untruthful	12	3.9
8. Uncooperative	12	3.9
9. Noisy or silly	12	3.9
10. Dull and uninteresting	7	2.1
11. Unkind	6	1.8
12. Discourteous or rude	5	1.5
13. Selfish	3	.9
14. Replaced by another child	30	9.1
15. Everybody a friend	25	7.6
16. Unclassified	47	14.3

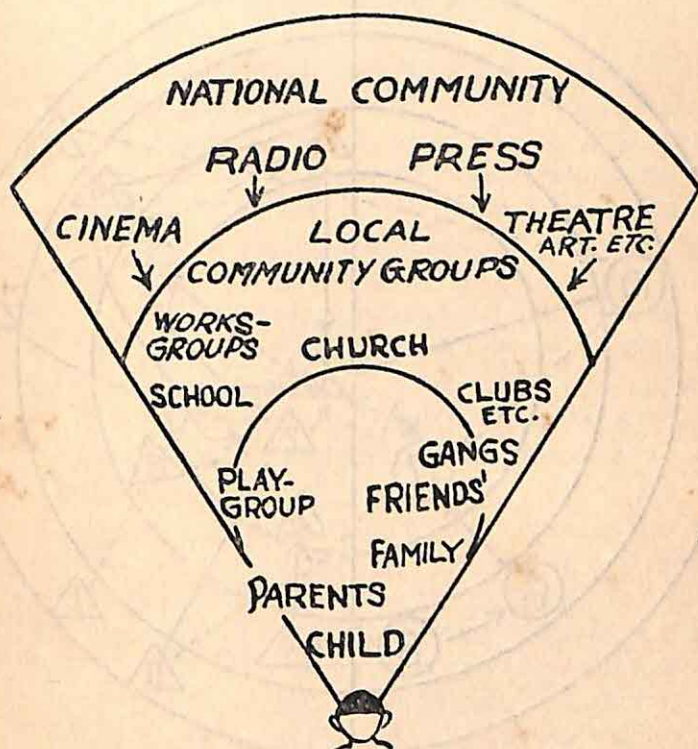
An analysis of the reasons given for selection and rejection will indicate that such personality qualities which satisfy the needs to belong and to feel secure and significant appear to be the most important reasons for selecting best friends. Thus in the social development of the child, friendship provides excellent opportunities for the satisfaction of social needs.

Social Interaction : Its meaning and Measurement

As the child grows in age and experience, his social environment expands and he is led to activities which involve social interaction. Broadly speaking, social interaction stands for the possible relations between individuals in groups or between the groups as social units. In the social development of the child, social interaction plays a very important part, for it passes on to him the cultural patterns of his society. We can observe the beginnings of social interaction in the relationship of the baby with his mother. As the baby grows, he begins to recognize his father and other members of the family. Gradually he becomes a member of his

family which is a primary group. Later on he may join a play-group and develop friendship. We have already seen how children form friendship and what are the reasons for accepting or rejecting individuals as friends. It needs hardly to be emphasized that friendship is a very important form of social interaction. How the circle of social interaction is enlarged is well illustrated by the following diagram :

Figure 14



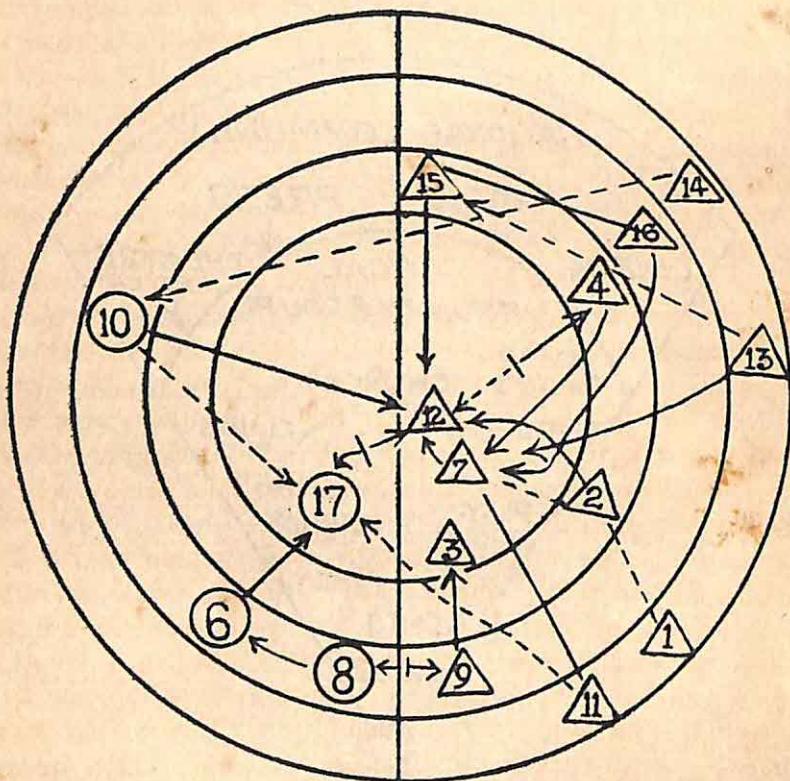
Circle of Social Interaction.

Social interaction among children takes place due to a variety of reasons. Studies have been made to discover these reasons. The science of sociometry is devoted of the study to the dynamic interrelationships of individuals within a social group. It has been helpful in the measurement of social interaction. Moreno,⁸

⁸ Moreno, J.L. *Who shall Survive? A new approach to the problem of human interrelations.* Wash, D. C.; 1934.

and Jennings⁹ have encouraged studies of social interaction by their bold theories and interesting techniques. Sociometric tests have been designed to measure the dynamic organization of a social group. These tests require a person to select his friends or companions from a group of which he is a member or wants to become

Figure 15



SOCIOGRAM: Luncheon preferences in a third grade group. The 12 boys are on the right, the 4 girls on the left. Solid lines are first choices, broken lines second choices. Arrows point to the pupil chosen; double arrowheads on the same line represent mutual choices.

a member. For example, each student of class VI or any other class in a school, may be asked to make first, second and third choices among his class-fellows for a particular social activity.

⁹ Jennings, H. H. *Leadership and Isolation: A study of personality in inter-personal relationships*. N.Y. Longmans, 1943.

On the basis of the data obtained a *sociogram* is drawn which reveals a social organization in which some students are *social isolates* and some others are *stars*. A star in a sociogram is that person who is liked by many people. Isolates are those persons who are chosen by a few persons. These isolates may be *neglectees* for being inconspicuous, or *rejectees* due to their anti-social and undesirable behaviour. Educationally, a sociogram of a class is meaningful to the teacher, for he is able to know the pupils better and pay attention to the neglected ones and take extra care of the rejectees.

Sometimes, instead of asking for the choice of best friends or companions, investigators have asked children to indicate those with whom they would not like to associate. This procedure is disliked by teachers for it leads to social antipathies among children. Therefore, some investigators tried to meet this objection by creating rating scales. Thompson and Powell¹⁰ devised a series of seven-point rating scales on which each child could rate his degree of acceptance-rejection of every other child in the class-room. But the rating technique is not easily administered. It is not so easy and simple as the rank-order procedure. Nonetheless it is more reliable and enables the investigator to discover a socially neglected as well as a rejected child without leading to social antipathies.

There are some other procedures and techniques for the measurement of social interactions, such as the paired-comparison procedure, which is a very laborious procedure and hence not very popular. In this procedure, every child in a group is required to make a choice between every possible paired combination of his companions, e.g., Ram-Shyam, Ram-Shiva, Ram-Ashoka and so on. Some of the other techniques which are not so formalized are mostly based on the systematic observations of children's behaviour in situations where social choices are made, e.g., choosing sides for a competitive game, spelling contests, elections and other activities of this nature. Thus these sociometric procedures attempt to find out about a child's social interaction and social acceptability. By means of these techniques and procedures teachers and counsellors are in a

¹⁰ Thompson, G. G. and Power, M. "An investigation of the rating-scale approach to the measurement of social status." *Educ. Psychol. Measmt.*, 1951, 11, 440-455.

position to know about the children and help them in their social adjustment.

Growth of Social Values and Attitudes

One of the purposes of education is the promotion of those social values and attitudes which are cherished and desired by a society. It is difficult to define a value but in general, it is a standard of behaviour by which people judge each other. There are social and moral values like honesty, kindness, loyalty, fair-play, respect for the property of others, etc. The way in which a person applies and interprets these values determines his *character*. Along with this, we may consider attitudes as well. An attitude is defined as a "functional state of readiness which determines the organism to react in a characteristic way to certain stimuli or stimulus situations."¹¹ Social attitudes refer to response tendencies toward other people or group of people. In other words, social attitudes are more or less permanent response or behavioural tendencies. Their importance in social development of the child is immense. Social values and attitudes are closely associated in social interactions. It is difficult to separate them operationally. But theoretically it is possible to consider them as two concepts for in the case of values, emphasis on the standard or objectives of behaviour while attitudes emphasize tendencies of behaviour. It is not our purpose here to enter into a comparison of social values and social attitudes. What we wish to emphasize is that these social values and attitudes are indicative of the nature of social development and adjustment which a child is able to achieve.

Some of the questions which arise in regard to values are : How do values affect behaviour? What are the effects of conflicting values on behaviour? How values are transmitted to children? What are the factors that influence the growth of values? These questions and others have engaged the attention of social psychologists, sociologists and cultural anthropologists. Postman *et al*¹² wanted to answer the question : How do values affect behaviour? They found that values can make a person

¹¹ Sherif, M. and Cantril, H. "The psychology of attitudes", Part I. *Psychol. Rev.*, 1945, 52, 295-319.

¹² Postman, L., Bruner, J. S., and McGinnies, E. "Personal Values as selective factors in perception." *J. Abnorm. Soc. Psychol.*, 1948, 43, 142-154.

"blind" in regard to some events and at the same time they help the individual in maintaining his balance of mind under a social stress. But values are not the sole determiners of behaviour. Never-the-less under normal circumstances, when there is no extreme social stress or pressure, we observe difference in the behaviour of a person with "strong" values and a person with "weak" values.

The effect of conflicting values on behaviour of children is psychologically harmful. Conflicts in values of the father and mother have adverse effect on the child. It has been observed that children of the "psychologically broken" homes became delinquent or develop other unhealthy behavioural patterns. Conflicts in values of the parents and the teacher, in values of the teacher and the pupils and in values of other social relations create emotional tension and unhappiness.

Thompson gives a good illustration of how values are transmitted to children? His illustration is as follows: "The child works hard on some activity in which he is personally interested. Parents, teachers and other children praise him for his efforts. This occurs again and again. From these experiences he is able to extract the attitude that "hard work" is a very satisfying state of affairs—even when the work is dull and uninteresting! We could parallel this situation with numerous other examples related to the growth of honesty, loyalty, cleanliness, good sportmanship, and the like. When the child's behaviour leads to parental, teacher, or peer censure, he is likely on the next occasion to select an activity that was previously acceptable and commendable. When such adult-child and child-child interactions take place time and again during the developmental years, these *little* events have a way of *generalizing* into higher-order concepts, or values".¹³ Here it is to be mentioned that in the growth of values more or less the same principles of learning follow which operate in the case of social needs, for values are also defined as generalized social needs.

Social values are developed in a cultural setting. Due to this, the nature of social values may be different in different cultures and sub-cultures. The effect of different sub-cultures on children's values has been studied by a number of investigators

¹³ Thompson, G.G. *Child Psychology*. Boston : Houghton Mifflin Co., 1952.

and almost all findings lead to the conclusions that sub-cultures do affect children's social and moral values.

There are certain factors which influence the growth of values in children. Social interaction within the family as well as the quality of parent-child relationships are the primary factors responsible for the growth of values. During the first five or six years of life, child's values are developed under the direct influence of his parents and of other "members of his family." It is believed that a number of values are established during the pre-school years. But as the child grows in age, a decline in parental influence on children's values sets in. Brown and his associates¹⁴ studied the influences of affectional family relationships on character development. They required ten-year old and sixteen-year old children to rate the affectional relationship existing within the family. The investigators also obtained the character reputation scores about these children from the ratings of adults and peers. It was found that there was close relationship between the estimates of children's honesty, moral courage, friendliness, loyalty and responsibility and the ratings of affectional relationships within the family of the ten-year olds. In other words, this investigation by Brown *et al* clearly demonstrated that with increasing age, there was decline in family influence on values of children. The following table presents the correlations between the two sets of ratings :

Traits		10-yr. old	16-yr. old
Honesty	..	.65±.03	.24±.06
Moral courage	..	.51±.05	.25±.06
Friendliness	..	.71±.03	.20±.06
Loyalty	..	.69±.03	.24±.06
Responsibility	..	.79±.02	.34±.05

Another interesting study was made by Havighurst and his associates.¹⁵ Their study was devoted to the development of

¹⁴ Brown, A.W., Morrison, J., and Couch, G. B. "Influence of affectional family relationships on character development." *J. Abnorm. Soc. Psychol.*, 1947, 42, 422-428.

¹⁵ Havighurst, R. J., Robinson, M. Z., and Dorr, M. "The development of the ideal self in childhood and adolescence." *J. Educ. Res.*, 1946, 40, 241-257.

the ideal self in childhood and adolescence. They ascertained the "ideal self" by categorizing the children's response to the following topic: "The person I would like to be when I grow up." The children were asked to exclude their own age mates as sources of ideals. The findings indicated that the values related to the "ideal self" are drawn in early childhood from an identification with one or both of the parents. Middle childhood and early adolescence is marked by a period of romanticism and glamour, and the values which are cherished during middle stage of childhood and early adolescence are drawn from film-stars, sports champions and individuals of great eminence either in history or in fiction. During the period of late adolescence, "ideal self" is based on generalized values. Havighurst and his associates found that the values relating to the "ideal self" were very much influenced by those adults who were admired by children for their position and prestige in life. In other words, teachers and others who come in contact with preadolescents and adolescents are in a good position to influence their ideals of life.

Character Development

Development of character is an important aspect of social development. The problem of character education has been always with the educators. The psychological approach to "character" not only has to take into account the behavioural aspects, but also the ethical evaluation, for there are different ethical standards prevailing in a society. Nonetheless efforts have been made to study the problem of character development in the socially approved manner. The Character Education Inquiry¹⁶ was a bold project launched by the Teachers College, Columbia University in 1924. Professor E.L. Thorndike was the general supervisor of this study and Professors Hartshorne and May directed it. It is not possible to present all the findings of this famous study, but it will be worthwhile to acquaint ourselves with factors related to character as described by the directors:

Age—We can say with considerable certainty that within the limits of the present research there is practically no correlations

¹⁶ Hartshorne, Hugh and May, Mark A., "A Summary of the Work of the Character Education Inquiry," *Religious Education*, 1930, 25.

between age and conduct, except perhaps, in the case of scores on the persistence tests. The results of our persistence tests do show that older children are inclined, on the whole, to be somewhat more persistent than younger children. This, however, may very well be accounted for differences between older and younger children in the amount of interest in the tasks set by our tests. In the case of deception, we found that the older children were, in fact, a little more inclined to be deceptive than the younger children. This is significant in view of the amount of money and energy that has been spent on their moral education.

Sex—Our tests show no consistent sex differences in the matter of deception but rather wide and significant differences in service and self-control. In the tests of helpfulness, co-operation and charity, girls are slightly better than the boys. Their teachers, however, rate them very much better than the boys In moral knowledge, attitudes and opinions, the differences again are very slight but favour the girls.

Intelligence—Nearly all of the children with whom we have worked were tested with the Thorndike Group Intelligence Test. We estimate that if all honesty tests were combined on a large population of children, the correlation with intelligence would probably run as high as .60 Evidently intelligence is more closely related to honesty than to any of these three (service, inhibition, and persistence) types of behaviour.

Socio-economic Background—We find significant differences in honesty between children whose parents are engaged in the professional occupations and children whose parents are unskilled labourers. We take this to indicate that the general social and economic background of the child is an important factor in his honesty. It is also an important factor in his social attitudes and opinions, and also in his knowledge of right and wrong.

A careful study was made in one community of the homes of the fifty most honest and fifty most dishonest children. This revealed certain important differences between home conditions of these two groups of children. The homes from which the worst offenders came might be best characterized as exhibiting bad parental example, parental discord, bad discipline, unsocial attitudes towards children, impoverished community and changing economic or social situation. The homes from which the more

honest children came revealed the opposite of these conditions.

Schooling—Turning now to school influences, we begin with the Sunday school. In the matter of honesty, cooperation, inhibition and persistence, we find a general tendency for children enrolled in Sunday schools, to exhibit more desirable conduct than the children who are not enrolled in Sunday schools. But, on the other hand, we find (and this is especially true of honesty) that there is practically no correlation between frequency of attendance at Sunday school and conduct

In our studies of the influence of the day school, we found that different types of school experiences are accompanied by differences in the conduct, knowledge and attitudes of children. For example, children who attend private schools, particularly the more progressive schools, are markedly more honest in their school work than are children who attend conventional public schools. This question was investigated rather thoroughly with a long series of experiments. Aside from the fact that children who attend private schools are a selected group coming from the better homes and better environments, we find that progressive methods are more likely to foster situations in which honest behaviour is the natural result than are the more conventional methods. Schools, however, differ widely among themselves, and there are enormous differences between different classrooms, indicating an influence of the teacher, an influence of the morale of the group, or both. These phenomena have been investigated, and we find that the attitudes of the teacher toward her pupils is a factor of considerable significance. Whenever this attitude is frankly cooperative and sympathetic, the children are likely to be more honest, more cooperative and to show higher degrees of self-control than in cases where the attitudes of the teacher is unsympathetic, arbitrary, and dictatorial.

Educational Implications

The directors of the Character Education Inquiry Project point out the educational implications as follows :

Contradictory demands made upon the child by the varied situations in which he is responsible to adults not only prevent the organization of a consistent character but actually compel inconsistency as the price of peace and self-respect.

There is introduced, therefore, one conclusion. This relates to the building of a functioning ideal for society which may serve at once as a principle of unified or consistent response and as a principle of satisfactory social adjustment. Such a policy or principle must, therefore, be derived from the inherent nature of social life and growth as experienced by the child himself. It must not only be scientifically sound in the sense that it presents a workable theory of life, it must also emerge in the minds of the children through their own guided experiments in living.

It can hardly be expected that most children can be taught to be responsive to social ideals unsupported by group code and morale. When the individual is made the unit of educational effort, he is so abstracted from life situations as to become more and more of a prig in proportion as his teachers succeed with him, and more and more the victim of a disorganized and detached mind in proportion as they fail. The normal unit for character education is the group or a small community which provides through cooperative discussion and effort the moral support required for the adventurous discovery and effective use of ideals in the conduct of affairs.

CHAPTER 5

MENTAL DEVELOPMENT

One of the important aspects of the education of child is his mental development. Mental development indicates the ability of an individual to pattern his responses according to the needs of situations in which he has to function. Thus mental development is a process of the formation as well as patterning of desirable responses. Mental development is closely related with intelligence and the capacity to learn. Thus mental development is also a kind of intellectual growth which the individual has to attain with the help of maturation, learning and education.

Nervous System

There are various factors which affect mental development. One of the important factors affecting mental development is the kind of nervous system one inherits from birth. The study of nervous system throws sufficient light on the mental growth of a person. It is not our purpose to go into the details of nervous system. But we shall mention in brief that aspect of nervous system which affects mental development. The nervous system is broadly divided into the central nervous system and the peripheral nervous system. The central part of the nervous system is a vast aggregation of nervous tissue and it consists of the spinal cord situated within the spinal column and the brain within the skull. As regards the peripheral nervous system it is composed of the numerous nerves extending from the spinal cord and the brain. There are also small aggregations of nerves cells in various parts of the peripheral nervous system. These small aggregations of nerves cells are known as the *ganglia*. With the help of the nervous system the human organism correlates and co-ordinates various activities and responses. There is no activity in which nervous system is not involved. Thus any mental activity is essentially related to nervous system. In brief the nervous system regulates the activity of all the organs and is engaged in constant adjustment of the organism according to the needs of the situation. Thus there is a

close co-ordination in the working of muscles as well as the functioning of the internal organs.

The brain which is an important part of the central nervous system plays extremely significant role in the mental development of an individual. It is with the help of the brain that a person receives sensations and forms perceptions. In other words, the brain is the organ which helps the individual in the perception of the surrounding world. The sense organs are connected with brain and they convey sensations and lead to perception which is the basis of mental activity. In other words, all human thought and consciousness are 'the products of the human brain'.

There are other aspects of nervous system which are related to mental activity and contribute towards mental development. But we shall not go into their details here. Suffice it to say that any discussion of mental development is incomplete without reference to nervous system specially the brain and its functioning.

Nature of Mental Development

The mental development of the child begins right from birth. As the child develops with the passage of time his mental reactions also change. These reactions indicate the new born's ability to respond to simple stimuli and in due course leading to complex mental activities. Thus mental development begins with the ability to respond to simple stimuli and with the passage of time it acquires a complex nature. In other words, the mental development of an individual is indicated when he is able to perform mental processes successfully.

Mental processes are complex in nature. Our mental activities are of various types and they are based upon our responses, reactions, etc. to various environmental stimuli. The major categories of mental activities are sensation, perception, memory, imagination and reasoning. All these categories of mental activity are inter-related and they develop as a whole. In other words, these categories of mental activity do not develop in isolation. They are inter-dependent and indicate a great deal of interaction.

Another typical feature of mental development is its continuity. In other words, mental development is continuous. Due to this feature of continuity it is not possible to observe any marked changes in the various stages of mental development. But it is possible to observe that during one age period there may be more

rapid change than during the other period.

Stages of Mental Development

At birth the baby has all the sensory equipments that are needed for mental activity. It has been observed that during the period from birth to the age of three or so there is a significant increase in the needs of the child and he begins to be selective in fulfilling his needs. In other words, by the age of three the child has specialised in his definite needs and he tries to find out the ways in which his needs are fully satisfied. For this purpose the child has to pay attention to the various needs around him and select the right one. This is a kind of mental activity and is indicative of the mental development of the child. At this age the child is also keen to secure approval from his parents and others for the things he likes or does. In other words, there is a definite desire on the part of the child to secure recognition and approval. During the first three years of life the mental development of the child is marked by curiosity. The child is curious to know about his immediate environment as well as the people who are around him. This period is also marked by a tendency to make belief. In other words, the child lives in a world of fantasy and imagine that the things around him have life and they can talk and move. Thus the child begins to personify the objects that are around him. For him the things around him are the living objects. Another typical feature of this stage of mental development is that the child begins to be aware of 'I' and 'you'. In other words, he begins to differentiate between himself and others. In the beginning the child has the impression that all are one but as he develops mentally his ability to differentiate between things and people also increases. Besides this ability to differentiate the child also develops a tendency to be negativistic and becomes in the habit of saying 'no'. In other words, this negativistic tendency is indicative of his desire to experiment under certain situations and to find out what happens if something is not done or denied. Thus the period from birth to the age of three is marked by such mental development as is expressive of child's curiosity, make belief, negativism as well as the desire to secure approval, recognition and attention.

Three to Six Years—The next stage of mental development is observed during the period from age of three to six years. At

this stage the child begins to learn the use of symbols and words. He tries to understand the meanings of symbols and words. Thus he is initiated into the cultural world of symbols, meanings and language. During this period the child has acquired many sensory and perceptual experiences. These experiences contribute a lot towards his mental development. It is significant to note that by the time the child enters primary school his mental abilities are matured to the extent that he is able to understand and think about matters pertaining to his general development. In other words, by the age of 5-6 years the child is matured enough to learn new mental activities and accept social responsibilities according to his age and status.

Later Childhood—After the age of six the period of later childhood begins and it is marked by the ability to acquire keen and accurate perception. In other words, the child's perceptual powers are accurate and sharp enough to understand and judge a situation. During this period various interests of the child are developed. He begins to admire things and peoples around him. He develops keen interest in such ideas as appeal him. His admiration as well as interest for public figures are well developed. He begins to immitate the manners and behaviours of those people whom he admires. Thus the mental development during the later childhood period is closely associated with the social activities.

It is important to bear in mind that there are no clearly defined stages of mental development in the sense that one stage ends and another begins. But it is correct to say that a person goes on developing mentally all his life. It is possible that during one period mental development is faster than during the other. The most important feature of mental development is the ability to employ symbols and to make plans according to one's remote goals. Mental development is also an aspect of the individual's ability to concentrate upon a project or a plan for a longer period of time. In other words, mental development is indicated with increase in "attention-span".

SENSATION AND PERCEPTION

Now we shall consider the various aspects of mental development. Sensation and perception constitute an important aspect of mental

activity. The general nature of sensation depends upon the five senses and recent researches have added three more to this list. Below we give the types of sensation, the related stimulus and the sense organ :

<i>Sensation</i>	<i>Stimulus</i>	<i>Sense organ</i>
1. Tactual	Changes in the temperature or objects coming in contact with skin	The skin
2. Gustatory	Chemical substances dissolved in saliva or other liquids	The tongue
3. Olfactory	Chemical substances in gaseous form	The nose
4. Organic	Churning of the walls of the stomach and certain chemical changes in the back of throat	Stomach and the back of the throat
5. Kinesthetic	Pressure on the muscle spindles and the tendons about the joints	Muscle spindles and certain tendons in the joints
6. Bodily equilibrium	Disturbance in the fluid of the semi-circular canals	Semi-circular canals
7. Auditory	Air vibrations	The ear
8. Visual	Ether vibrations	The eye

Sometimes it is said that sense organs are the gates of knowledge. But it is partially correct for sensation is the first step towards knowledge. In order that sensation assumes the form of knowledge it is necessary that it is attended to and then a meaning is attached to it. In other words, sensation has to acquire meaning in order to become knowledge. We shall consider this in detail when we will discuss the nature of perception.

As regards the characteristic of sensation it has been observed that sensations bring about certain change within the individual when there is a stimulus present. Sensations assume the form of some kind of motion in the physical world of the individual. For example air waves, heat waves, etc. stimulate sense organs

and create sensation. Thus the first characteristic of a sensation is that it makes the individual respond to certain happenings in his outer environment. Sensations are un-noticed to the extent they are unattached with any meaning. The moment some meaning is attached to a sensation it acquires the form of a perception. In other words, the sensations are the raw-material out of which the perceptions are formed.

The second important characteristic of sensations is that the degree of intensity is responsible for its effectiveness. In other words, in order to be effective sensation must have the necessary amount of intensity. For example if there is a very low sound it fails to create any sensation. On the other hand if there is over-intensity it becomes painful. Thus it is desirable that every sensation must have so much of intensity in it as makes it effective. In this connection it may be mentioned here that the point below which a sensation has no effect is called the *lower limit* or *limen*. Likewise there is the point of *upper limit* which is indicated when a sensation becomes painful. So in between these two limits there are numerous sensory intensities. If a stimulus falls below the limen it has no response or when a stimulus crosses the upper limit it becomes painful. The upper and lower limits of intensity are also known as thresholds. It is evident that the mental development of the child depends to a great extent upon the nature of stimulation he receives in his life as well as the development of his sense organs. If a child is subjected to over intensity he is liable to suffer in his mental development.

Perception

There is no perception possible without sensations. According to Brown and Gilhousen, "A sensation is an awareness of the bare quality of experience and arises directly from the stimulation of a sense organ". As regards the nature of perception they observed, "A perception involves an awareness of objects and events that are present in the immediate environment A perception is determined in part by what you sense, but it also depends upon past experience (learning), interest or motivation, alertness and selective attention".¹ The important thing about perception is that it makes the individual aware of his environ-

¹ Brown, W. and Gilhousen, M. C. *College Psychology*, 1949.

ment. In other words, perception is the knowledge which is sensation plus meaning. How perceptions are formed can be explained by the following diagram :

<i>Object</i>	<i>Capacities</i>		<i>Experience</i>
Apple	Red	Sight ..	"Red" Sensation
	Sweet	Taste ..	"Sweet" Perception
	Hard ..	Kinesthesia ..	"Hard" Percept of Apple
	Smooth ..	Touch ..	"Smooth"

The process of perception is a complex one and cannot be explained or analysed because it is the result of a configuration or Gestalt. When we perceive a house the configuration or Gestalt comes first in our attention and then later on we go into its details as regards its shape, size, colour, etc. It is to be borne in mind that sensation and perception are only two aspects of a single mental process. It is impossible to separate the sensation from perception. Nonetheless for theoretical purposes we discuss sensation separately. Some psychologists prefer the expression 'sense-perception' in order to emphasize the close and inseparable connection between sensation and perception.

Factors Influencing Perception

Perception is influenced to a great extent by the direction of our attention, expectation or desire. For example if we are searching something in a room our attention is directed towards that object of search and we do not 'perceive' other objects in the room. Secondly we look for a thing in a place where we expect to find it. Our desires also affect our perception for a hungry man in search of food perceives a circular piece of board to be a bread.

The most important aspect of perception is the organisation of the sense-field. It depends upon the brain and other related organs. The sense-field is organised mainly on the basis of proximity, similarity, continuity, completeness and symmetry. These are the five elements which help the organisation of the sense-field necessary for perception.

The Gestalt Theory

Our understanding of perception has been facilitated by the Gestalt School of Psychology. As the name of this School suggests it emphasizes the element of 'configuration' or 'form'. 'Gestalt' is a German word which means 'whole made of related parts'. According to Gestalt theory of perception even a baby perceives an unfamiliar object as a form or figure. In other words, there is an innate tendency within the individual to organise his sense-field and to perceive objects in his environment as a whole. The classical psychologists believe in the theory that our experiences are composed of elements of sensation. But the Gestalt psychologists emphasize the fact that our sensations get organised into a pattern or a form and then we perceive. Modern researches have supported the Gestalt view of perception. The study of the people born blind and who have later gained sight by operation have proved that such patients see an object in an organised form. Thus it is apparent that the Gestalt view of perception which insists upon *form* as an important content is acceptable. The atomistic approach to perception is opposed by the Gestalt psychologists.

Children's Perception

In the beginning children's perception lacks richness, definiteness and details. But with the passage of time and increase in experience the children develop mentally and are in a position to perceive things in their definite and detailed form. It is the purpose of education to provide such experience to children as develop their mental abilities and enable them to gain a variety of experience in relation to space and time, etc. Studies have shown that young children do not have a clear notion of space and time as adults have. The new methods of teaching like the Montessori method emphasize sense-training to a very great extent. When the sense-training is satisfactory the child is in a position to develop the desired apperception mass which is extremely important for the mental development of the child.

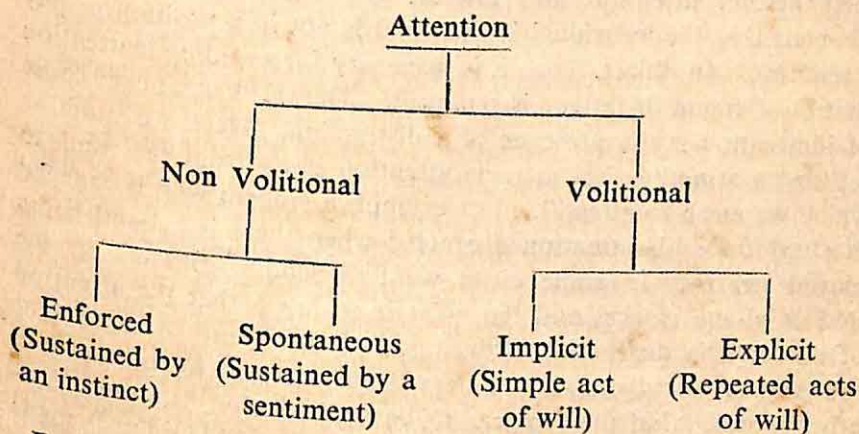
ATTENTION AND INTEREST

Attention is an inseparable part of any mental activity. Without the necessary attention it is not possible to attend to any

mental activity. That is why attention is defined as "the process of getting an object of thought before the mind". According to McDougall "attention is conation or striving considered from the point of its effect or cognitive process". Thus it is clear that attention is involved in all mental activity. Our attention is greater when the object concerned is clear and helps in comprehension. Another important feature of attention is that it is selective. We do not pay attention to everything. But we are inclined to direct our attention to those things which interest us.

Interest and attention are like the two sides of the same coin. Interest directs attention. The Latin equivalent of 'interest' means 'it matters' or 'it concerns'. According to McDougall, "to have an interest in any object is then, to be ready to pay attention to it". He further observes, "interest is latent attention and attention is interest in action".

There are various types of attention according to the involvement of the individual. The following chart presents the classification of attention :



Experimental studies have shown that there are several factors influencing attention at a particular time such as the factor of *change*. A moving object attracts our attention more than a static one. Likewise the factor of *strength* is also important. The difference of strength between two stimuli is an important factor. The stronger stimulus attracts our attention than the weaker one. The other factors are size, repetition, striking quality and definite form. An object bigger in size has better chances of getting

attention than a small object. Repetition also invites attention. But over repetition is harmful and boring. The striking quality appears strange and attracts attention. The commercial advertisements displayed on the streets possess striking quality and, therefore, they attract the attention of a passer-by. The last factor of definite form is of course related to the Gestalt view of perception. Things which have a definite form attract our attention much more than those which are hazy.

Thus attention and interest are also important in mental activities. In the mental activity of the child we have to provide for such experiences and activities as are helpful in developing his all type of attention and interests.

Inattention

It is desirable to consider here the causes of inattention. The main causes are the lack of interest, fatigue or the presence of a distraction. In other words, inattention occurs when the object being attended to is not interesting for the subject. As we have seen before, attention and interest go together. Sometimes it happens that the individual is tired and is not in a position to pay attention to an object. Thus it is necessary for avoiding inattention that the element of fatigue is removed. The third significant cause of inattention is the presence of a distraction. Here a distraction means "a stimulus that attracts attention away from the thing to which we mean to attend". For example a student who is engaged in study finds his attention distracted when there is a band being played nearby. In some cities we find schools situated in the middle of the market and the noise is so much that the attention of students is distracted. But it has to be borne in mind that the nature of distraction differs from person to person. In other words, what may appear to be a distraction for one individual may not be a distraction for the other. This point is made clear by the example of a person working in a factory. The noise created by the machines in the factory does not distract attention of the factory worker for he is accustomed to that noise. On the other hand a visitor to the factory finds the noise disturbing. Thus what becomes habitual for a person does not distract his attention. Then another important point about distraction is that it is not always harmful. Sometimes it makes an individual to make greater effort in order to confine his attention to the work

he is doing. Thus at times a limited distraction may lead to greater effort and efficiency.

Training in attention cannot be complete without the development of the ability to keep away distraction for there cannot be any environment or working condition devoid of all distraction. Distraction is there but it differs in degrees. At some time or place a distraction may be in greater degree and at other place or time it may be less. So the training in attention is incomplete without the ability to concentrate even in the presence of some distraction. It has been observed that if a person becomes familiar with a place and works there for a long time, he is able to concentrate even when there is some distraction. The example of the factory worker illustrates the point. The main thing is that distractions cannot be controlled by a direct fight. They have to be kept away from the mind by a conscious effort. The best method of avoiding inattention is to overcome the distraction by either side tracking it or by making it complementary with the main task.

Training in attention develops a habit of attention. But it also depends upon certain factors. In other words, attention is sustained when it is related to the desire or interest of the individual. Another factor is curiosity. When the individual finds something curious he attends to it. The third factor is the mastery impulse when a person takes a situation, even though uninteresting, as a challenge to his ability and would like to show others that he can do something which is unpleasant. The fourth factor is the fear of punishment or hope of reward. In schools this is one of the common factors which compels students to pay attention to their studies. Now-a-days it is the hope of reward which is being used more than the fear of punishment in arousing attention of a learner. Finally a genuine interest in the subject is another important factor which sustains attention. The teacher has to develop in his students a genuine interest in the subject he is teaching. When this is done there is no problem of inattention. The success of a teacher depends upon his ability to develop in his students a genuine interest in a subject, to arouse their curiosity and provide for incentives which are mostly psychological.

We have considered in detail the various aspects of attention and interest and have also seen how we can provide training in attention and control distraction. Education for attention helps in the general mental development of the child. It has to be

carefully planned keeping in view the age and experience of the child.

MEMORY

Memory is a mental capacity or ability to revive or to relive a past experience. In other words, the mental development of an individual is observed when he is able to reproduce from memory some experience which occurred before. There are four important processes involved. The first one is learning or remembering. We shall consider this process in a great detail later. The second process involved is that of retention. Retention means persistence of after-effects of experiencing which are implied in learning or remembering. The third process of memory is recall. Recall is the process in which the individual lives through again some previous experience. Another common meaning of recall is the repetition of words or similar material previously learned. The fourth process of the general capacity of the memory is recognition. Recognition is the awareness of an object which has been previously observed. Thus memory involves the four processes of learning or remembering, retention, recall and recognition.

According to William James, "Memory proper, or secondary memory as it might be styled, is the knowledge of a former state of mind after it has already once dropped from consciousness; or rather *it is the knowledge of an event, or fact, of which meantime we have not been thinking, with the additional consciousness that we have thought or experienced it before.*"² Thus the basic quality of memory is knowledge of something which has occurred before. The individual is able to retain in his mind some experience and recall it as the need occurs. According to William James memory cannot be complete without the retention of the remembered fact and its recall or reproduction.

Retention and Recall

The processes of retention and recall are intertwined. Without retention there cannot be any recall. But the quality of retention differs from individual to individual and it is related to the psychophysical state of a person. Schneiders considers retention as potential recall for it is the nature of retention which provides material

² William, James. *Psychology : Briefer Course*, 1923.

for recall. It is to be mentioned here that the process of retention is such that no learned material is written in its original form. In other words, in the process of retention a learned material is modified in the light of previous experiences.

There is another angle from which we can consider the nature of retention and recall. Retention is basically a change in the mental apparatus. According to Schneiders "the more vivid the experience, or the more often the act is repeated, the more deep seated is the modification and the more permanent and efficient is the retention". He further points out that the nervous system is involved in the process of retention. Therefore, it is correct to presume that "retention is found on some change within the nervous system, complemented by a corresponding change in the muscular apparatus, if this factor happens to be involved in the learning process". Thus retention is a psycho-physical process. As regards the process of recall it is comparatively simple for it involves the reinstatement of a retained material. It has been observed that recall is mainly of two types—voluntary and involuntary. The voluntary recall is rather difficult for in this process the mind has to function actively. According to Schneiders in voluntary recall "there is a conscious deliberate search for items of experience or knowledge that at the moment lie outside the field of awareness". As regards the involuntary recall Schneiders observes that in it "some items of previous experience appear spontaneously". According to Woodworth recall is concerned with the following types of mental activities :

1. Recall lists items, facts, material of any sort which has previously been learned and is now intentionally remembered.
2. Execution of any learned act.
3. The calling up of sensory images.
4. Reverie or "free association", without any intention of recalling— "one idea calls up another".
5. Controlled association such as occurs in adding, reading, or conversation.
6. Thinking, as in problem solution and the mastery of novel situations. Recall furnishes raw-material for thought.

We shall consider other aspects of retention and recall when we study the nature of remembering and forgetting.

Development of Memory

After considering the processes involved in memory let us study its development during the different stages of life. During the first five or six years of life the child's experiences are numerous and they are related to all aspects of his life. According to Jersild the child becomes able to remember only when his memory has developed. He further observes that childhood memories are like a bridge between the adulthood and childhood. The individual draws upon his early memories in order to interpret a situation. It has been observed that ability to remember is indicated in a child when he ceases to cry in the presence of a person or adjusts himself in a situation. In other words, early childhood memories are indicative of a child's mental development. But it is extremely difficult to recall early memories. Studies have shown that the early memories of childhood experience are easily forgotten. It is to be remembered that experiences related to any period of development are most likely to be remembered when they are associated with pleasantness and the important goals of life. It is also true that individuals forget their unpleasant memories. It all depends upon the nature of objects and experiences which are related to early memories.

Adult Recall of Early Memories

The role of early childhood experiences in the development of adult personality has been studied mostly on the basis of an adult's recall of his or her early memories. In some studies parents have been asked to recall memories of their early childhood behaviour. Wang³ explored the significance of selected items of facts in an individual's personal history for certain of his personality traits. He attempted to answer, "What facts in a person's early life are significant in the formulation of his personality traits?", by asking the subjects of his study to recall their early childhood memories and write their personal history. It was assumed by him that adult recall of early memories was reliable. How far he was correct in his assumption of the reliability of early memories is an important question.

Dudycha and Dudycha⁴ made a review of the literature on

³ Charles K. A. Wang, "The significance of Early Personal History for certain Personality Trait", *The American Journal of Psychology*, 44, 1932, pp. 774-786.

⁴ George J. Dudycha and Martha M. Dudycha, "Childhood Memories : A review of Literature", *Psychological Bulletin*, 38, 8, October 1941, pp. 668-682.

childhood memories published during the last 47 years prior to 1941. They point out :

The careful examination of memories of early childhood does throw some light on the attitudes and experiences of older children and adults—it is a valid genetic approach. On the other hand, we agree that the indiscriminate acceptance of memorial reports indicates a lack of scientific and discriminating insight. (2, p. 669.)

In their review, the authors comment on precautions taken to check the accuracy of memories and state that in most of the studies published prior to 1941, little attention was paid to the accuracy and reliability of early memories. In their concluding remarks, they have suggested that care should be taken in securing the details of early memories, and have further suggested that “the memories included in any study be limited to those which occurred in the first five years of life.” (2, p. 681.) From their review it is revealed that the average earliest memory relates to somewhere in the fourth year. Towards the end of their review, the authors have stated the following problems which could be studied with profit:

- (1) Early memories recalled by subjects varying in intelligence, namely: dull, average, and gifted.
- (2) Relationship of language acquisition to early memories.
- (3) Similarities and differences between the memories recalled by subjects belonging to different age groups (preadolescent, adolescent, mature and senescent people).
- (4) Relationship between early memories and various personality traits.
- (5) Experimental research relative to the psycho-analytic point of view.

Thompson and Witryol⁵ felt that on the basis of adult recall of unpleasant experiences during childhood it would be possible to define “certain aspects of American culture by pointing up some of the unpleasant events experienced in this society by children of

⁵ Thompson, G. G. and Witryol, S. L. “Adult Recall of Unpleasant Experiences during three periods of Childhood.” *J. Gen. Psychol.* 72, 1948, pp. 111-123.

different levels of maturity". They did not, however, take into consideration the problem of accuracy and reliability of the recalled material when they asked three groups of fifty adults to recall for twenty minutes unpleasant experiences from three periods of development, namely, 1-5 years, 6-12 years, and 12-18 years. Their findings indicated that from the first five years of life adult subjects recalled more unpleasant experiences. The recall of early memories from 1-12 year period indicated that the experiences were related to "learning to live in a social world". Likewise there were some other significant conclusions from this study. But again, are the findings of this study accurate and reliable? In view of the doubtful nature of the recalled material, the question remains unanswered.

Smith⁶ made a case study of childhood memories compared with those of adult life. The subject of this study was a retired psychologist sixty-two years in age. The memories of the subject's past 49 years of life were collected by the following method. The subject was asked to recall as many incidents as possible from all periods of her life, and to note cue or suggestive words for each memory. The process of collecting early memories continued till the time the subject was completely unable to recall anything. After a gap of some days, the subject was again asked to recall early memories. By this process 6000 "memories" were recalled. Some memories were verified with the help of early notes in the subject's diary and letters, etc. Thus, in this case study, the investigator made an effort to verify the accuracy of the recalled memories. How far this effort in verification of early memories was successful is not known.

In order to verify the accuracy and the reliability of the early memories recalled by adults, a study was made by the author on the basis of early records and ratings. It was thought that if the adult subjects were asked to recall their dominant or submissive behaviour pattern during pre-school years, the nature of the recalled material could be verified with the help of early ratings.

The Procedure

Fifty former Merrill-Palmer Nursery School⁷ children who

⁶ Smith, Madorah E. "Childhood Memories compared with those of Adult Life", *Journal of Genetic Psychology*, 80, 1952, pp. 151-182.

⁷ The author gratefully acknowledges the assistance given by the Merrill-Palmer, Detroit, Michigan (USA) for purposes of this study during 1953-54.

are now adults with an average age of 26 years, were co-opted for purposes of the study. From the record files of these subjects early Merrill-Palmer ratings on the Ascendancy-Submission scale, made over a period of time, were obtained. The subjects were asked to complete a self-rating on an adaptation of the Ascendancy-Submission scale with the instruction that they should check only those items on the scale which they recalled were true of them as children not more than six years in age.

A comparison between the early ratings and the self-ratings was made to find out in how many cases the adults failed or succeeded in recalling their early childhood ascendant or submissive behaviour. For purposes of comparison, all the scores were converted to a common 7-point scale. The cumulative frequency distribution of the rating scores of the 99 cases used by the authors (5) in the construction of the scale furnished the basis for the conversion. This distribution was divided into seven intervals according to normal probability curve. The following tabulation gives the theoretical percentage frequency and the actual rating score range for each of the 7-point scale intervals :

1	2	3	4	5	6	7
7	12	19	24	19	12	7
36 or	37—40	41—59	60—71	72—78	79—83	84 and above below

The 7-point scale intervals were described as below :

7. *Strongly Dominant* : Strongly marked tendency to take active role in dealing with people.
6. *Moderately Dominant* : Marked tendency to take active role.
5. *Slightly Dominant* : Slightly above the average in tendency to take active role.
4. *Average* : Neither dominant nor submissive.
3. *Slightly Submissive* : Slightly yielding in interrelationships.
2. *Moderately Submissive* : Tendency to be passive in contacts.
1. *Strongly Submissive* : Strong tendency to be passive in contacts.

The Findings

According to early ratings of the fifty subjects, none was strongly dominant, one was moderately dominant, seven were slightly dominant, twenty-three were average, fifteen were slightly submissive and three were strongly submissive. According to scores on self-rating it was found that of the fifty subjects, four recalled themselves strongly dominant, three moderately dominant, twelve slightly dominant, six average, seventeen slightly submissive, two moderately submissive and six strongly submissive. The comparison of the subjects in terms of ascendance and submission according to the early ratings and later recall is presented in the following table :

<i>Submission</i>			<i>Average</i>		<i>Ascendance</i>	
1	2	3	4	5	6	7
3	1	15	23	7	1	0 : Early Record
6	2	17	6	12	3	4 : Adult Recall

Taking individual case approach, it was found that of the fifty cases, nine were able to recall their early childhood ascendant or submissive behaviour pattern. These nine cases were slightly submissive during their pre-school years and they were able to recall the same behaviour pattern after about twenty years.

In fifteen cases, the adult recall differed by one point on the 7-point scale. The remaining twenty-six cases were unable to recall correctly their early memories of ascendant or submissive behaviour.

Discussion

In this study, the method of testing early memories was concerned with pre-school social behaviour in terms of ascendance and submission. In other words, the subjects were required to recall such memories as they had shared with others in face-to-face relationships. Therefore in recall of such social relationship memories

the chances are that the least effort will be made to conceal them by repression. In view of this fact the findings of this study may be considered free from the mechanism of repression which operates in the recall of intimate or unpleasant memories.

Conclusions

We may conclude, on the basis of these findings that :

1. Eighteen per cent of the individuals are able to recall their early memories of face-to-face relationships.
2. Thirty per cent of the people are partially inaccurate in their recall of early memories.
3. In fifty-two per cent cases the recall of memories is inaccurate and unreliable.

It must, of course, be borne in mind that these conclusions are based on fifty cases only and they are therefore limited in their generalization.

IMAGINATION

Imagination is a mental activity and it indicates the level of mental development of a child. Before we proceed to discuss the nature of imagination it is desirable to clarify the meaning of the terms imagination and imagery because certain psychologists use the term imagery and not imagination. According to Charles Fox "the term imagination is terribly ambiguous, covering a variety of different processes only loosely connected, if at all, with one another". Further he observes that the imagination was applied to a faculty or the "ability to evoke and use mental images". As regards the term imagery it refers to the work of imagination. Thus imagination and imagery are closely associated.

Images

There is no imagination possible without images. We form mental images of absent objects, past events as well as of things that have actually never existed. In other words, mental images are the means by which one can visualise what is not before one's eyes. Then images are classified according to their nature. If

a person visualises the appearance of a house or has an auditory image of his friend's voice, he is experiencing memory-image. On the other hand if a person has a mental picture of a man with his face like that of a goat it is said that he has formed a constructed image. Thus images are of two types : memory-image and constructed image. If we compare these two types of images we find that whereas memory images reproduce or resemble something that has been experienced in the past, constructed images are entirely novel. But it has to be borne in mind that while a constructed image is novel as a whole its various components are based upon the past experiences of an individual. For example a person who has never seen a goat cannot have a constructed image of a face like that of a goat. The novelty for the constructed image is due to the fact that a person is able to combine the elements of his past experiences and form entirely a new image.

A study of images has shown that they are associated with our different senses. One can see pictures in the mind's eyes and hear sounds in the mind's ear and also evoke images associated with all other kinds of senses. For example one can have the image of taste of salt or the smell of the image of the rose etc. Studies have also been made to estimate the relative clearness of the different types of imagery. It has been found that the visual imagery is the clearest. The auditory imagery is less clear than the visual imagery. The images of pain and smell come at the bottom. This is quite consistent with the fact that there is the predominance of the vision in the life of man. Even when a man understands something he says "I see". Thus in the mental development of the child it is imperative that visual images are encouraged to be formed as much as possible. In other words, there should be proper provision for the education of senses as images and sensations are closely related. But there are certain important differences.

Images and Sensations

It has been found that a sensation occurs only when the sense organ concerned has stimulation. But in the case of images it is not necessary that there should be stimulation of the related sense organ. Images are formed without the need for a sense organ to be stimulated. One can have visual images in dark and even the destruction of sight does not deprive a person of his

visual imagery. Similar is the case with other types of images. The second important difference between images and sensations is that sensations end or become modified when stimulation ceases or changes. In other words, sensations are entirely dependent upon stimulations and their durations. A change in the nature of the stimulation also brings a change in the nature of sensation. On the other hand, images are not bound by stimulations. They can occur without any relation to stimulations and their period is also independent of them. Another significant difference is that images can be created at will. In other words, our will plays the same role in the case of images as stimulation does in the case of sensations. Then every sensation has to have a sensory context for without it no coherence is possible. In the case of images there is no need for sensory context and thus they remain relatively isolated. The final difference is that images are less vivid than sensations.

In spite of these differences it has been found that some individuals commit the mistake of considering images as sensations and sensations as images. For example hallucination is a kind of image but sometimes is regarded as a sensation. According to Murphy under appropriate experimental conditions in a dark room one cannot tell when he is actually seeing and when he is actually imagining a faint picture on a screen. But in spite of this fact the function of images is extremely important in the mental life of the individual.

The Functions of Images

Studies have shown that without images thinking is not possible. In other words, images are the elements of all thinking. It is with the help of images that a person is able to think about all kinds of objects, events, etc. without being governed by the conditions of time and place. Another function of images is that it helps us to visualise a thing and remember it. Images are also effective means to abstract thought. Studies have shown that verbal images are helpful in abstract thought. But according to Pear^s concrete non-verbal images are much more useful in abstract thought than verbal images. There are psychologists who emphasize the fact that concrete models are helpful in the

^s Pear, T. H. *The Place of Imagery in Mental Processes*, 1937.

formation of images. They also pointed out that most of the people often employ non-verbal images for abstract ideas. A good example of a non-verbal image is that of scales for justice. In all mental manipulation images are extremely necessary. Inventors and scientists, chess players and politicians foresee the possible steps to be taken in a given situation. Even in literary creation and appreciation images are needed. When one reads a poem he tries to create the atmosphere with the help of images to which the words refer. Thus we find that function of images in the mental development of an individual is related to his ability to think and solve problems as well as his capacity for aesthetic enjoyment.

Development of Imagination

In order to help the development of imagination of children it is desirable that a teacher provides clear cut stimulations. He should pronounce a word as clearly as possible so that there is proper sensation and later on appropriate images are formed. The teacher ought to help the children by developing in them the ability to revise all kinds of images. Sometimes it may happen that a child loses his visual imagery. In that case it should be possible for him to develop his auditory imagery. We have seen how blind children and men become good musicians because they have compensated the loss of their vision by developing their auditory powers. Education for imagination should be based upon the different types of imagery that children develop. Sometimes a child may have a predominance of visual imagery. Such a child can be a good painter. Any child whose auditory imagery is excellent has immense possibilities for becoming a good musician. Thus the teacher should find out the type of imagery predominant in a child and try to educate him on the basis of that imagery. It should be the endeavour of the teacher to provide opportunities to pupils for the use of their imagery. If it is not done there is a great possibility that the children may lose their power of imagery in due course and thereby become handicapped.

Lawrence K. Frank⁹ has discussed the place of imagination in education. According to him as the child grows, "his awareness

⁹ Frank, L. K. *Imagination in Education*, 1956.

and his perception enlarges, he begins to notice, as we say, what he previously ignored, to recognize people and objects. He also begins to perceive the patterned sounds of language and to orient himself by those sounds, which means he has begun to use imagination....” He further observes, “children early learn that imagination may be hazardous, provoking, wrathful reactions from adults who are fearful of any heresy, any departure from orthodoxy until it has been fully accepted and sanctioned by the public and become venerable through age. Often a child subject to this adult condemnation or ridicule of his private imagination, lets it atrophy and later die, apparently content to imagine the world only as authorised and approved”. Emphasizing the importance of imagination in education, Dr. Frank states that efforts should be made to develop imagination of children by means of education. According to him the potential imagination of children should be drawn out in a way that “there will be something active and creative to discipline in each child, according to his unique individuality”. Thus it is apparent that the mental development of the child is not possible without necessary education for the development of imagination as imagination is one of the important aspects of mental development.

Development of Concept and Reasoning

In the mental development of the child concept and reasoning are extremely significant. As the child matures and gains experience he is in a position to understand things and the reasoning behind their working. Piaget has studied the development of concept and reasoning among the children. According to him the child has no idea of cause and effect in the beginning. If we compare the reasoning processes of the child and the adult we shall find that before the age of 7 or 8 years the child is unable to look at things from the other's point of view. Not only this, he is unable to find out the general principles involved in a situation. Studies have shown that the stages of mental development pointing out the differences between the reasoning of the child and the adult are not very clear. There are other factors involved along with maturation and learning. But one thing is definite that the child is always in a position to solve problems on the basis of his experiences.

Studies have been made to determine the concepts of cause and

effect among the children. It has been found out that questions like from where the rains come or how the flowers grow have been answered differently. In studies of English speaking children it has been found that most of the children at all age levels generally explained the nature of a cause to be physical or mechanical. In other words English speaking children try to explain some effects by pointing out physical or mechanical causes rather than in terms of magic or some other force like it. But with the passage of time and education children develop the ability to understand the real causes. Nonetheless it has to be kept in view that questions pertaining to causes are answered by children always in terms of their life experiences. When they are asked about such things as are not related to their life or environment and also they do not have any experience their answer is rather illogical. As regards the concept of time it has been found that by the age of 9 and 10 a child is generally able to have some idea of time. With increase maturity and learning a child develops better concept of time. Thus it has to be kept in view that while teaching history there should not be undue emphasis upon historical dates in primary classes.

It is a well-known educational principle that education should start from concrete to abstract. In other words in the early classes children should be given such experiences as develop in them concepts of concrete things. But later on with the change in their age and social orientation it is possible to teach them about abstract concepts. When the child is young he is more occupied with his direct and personal needs, interests, etc. and, therefore, he is less inclined to study problems which are related to others. But when he grows up he is able to understand the needs and interests of others and thereby begins to understand the nature of social problems affecting his community. Thus gradually he is led to abstract concepts which throw light upon the real nature of problems affecting the community at large. Abstract concepts like justice, tolerance, truth, etc. are better understood by children when they are explained on the basis of concrete happenings.

Development of concepts and reasonings is also an integral part of thinking. We cannot think unless and until one understands the nature of a thing or an idea and is able to reason logically. Thus thinking is a kind of logical reasoning. According to H.B. English, "Any non-perceptual process or activity not predominantly

perceptual by which one apprehends an object or some aspect of an object or situation" may be regarded as thinking. He further points out that, "Judging, abstracting, conceiving, reasoning and in a somewhat extended sense, imagining, remembering and anticipating are forms of thinking."¹⁰ Thus it is quite clear that thinking is such a mental process in which all other kinds of mental activities are involved.

As regards thinking among children it has to be noted that there are various factors which affect thinking. A very important factor is that of emotions. Emotions affect a person's thinking to a very great extent. It has been found out that if a person is emotionally involved in a situation he is not able to have an objective view of it and express unbiased opinion. Thus it is right to say that a person's thinking is affected by emotional factors. But normally with the help of education when a person is more informed about a thing he is likely to have less prejudiced view otherwise ignorance and prejudice go together. Less the information about a matter, more prejudice there will be. That is why in a democracy there is great emphasis upon providing information to the public so that it knows about important matters engaging the attention of the government. Same is the case with an individual in a community. If a person does not know about the customs, manners and modes of the community in which he lives, he is likely to be prejudiced against it. A prejudiced person is unable to think. It is, therefore, desirable that we should try out best to give proper education to our children so that they do not develop any kind of prejudices. The role of the parents and the family in the development of thinking among children is rather important. If adults are prejudiced against the caste or community they are likely to develop in their children the same prejudices. In such a case no amount of information and education will be helpful for the child is already conditioned to the ways of his parents thinking and prejudices. This shows that emotional factor is more powerful than educational factor in regard to prejudices. Our emotions and feelings give extra force to our thinking. It has to be noted that emotional factor in thinking is not always undesirable. It is quite possible to feel strongly about good things as well. Thus children have to be taught keeping in view their emotional needs

¹⁰ *A Student's Dictionary of Psychological Terms.*

and have, at the same time, to be provided such experiences as are helpful in the development of free thinking.

The factors of intelligence are to be noted here. Some times it is thought that individuals of high intelligence are necessarily free from prejudices. But this is not correct. It has been found out that brilliant people sometimes use their intelligence to fool others as well as themselves. According to Gardner Murphy, a person may have a very high capacity for original thinking 'but he may be a fool' in regard to such matters of which he has no experience. Thus high intelligence alone is not protection against illogical thinking and prejudices. It is, therefore, desirable that efforts should be made to develop what is popularly known 'unconventional' thinking.

The mental development of the child is necessarily based upon his total growth and development as he matures and learns and gains experiences. His mental development in all its aspects also takes place. As stated earlier mental development is satisfactory when there is provision for the development of senses. The new methods of teaching emphasize sense training. So with satisfactory sense training it is possible for the child to have proper sensations and perceptions and thus develop other mental abilities. Language is also an integral part of mental development. It denotes the level of mental development of a person. We shall consider this topic in the next chapter.

CHAPTER 6

LANGUAGE DEVELOPMENT OF THE CHILD

There has been a great interest in the study of the language development of the child since 1925 due to the fact that the mental life of a child cannot be properly understood without studying his language development. In other words, mental development is indicated by the kind of language a child uses. Then there were efforts for devising mental tests and it was found that mental tests pertaining to children could be properly devised only when there was sufficient knowledge of language development in children. As we know now-a-days we have a number of intelligence tests which are verbal in nature. Verbal tests of intelligence have become possible with the help of the studies of the language development in children.

Meaning of Language

Psychologists have been concerned with the meaning of language for there is a considerable amount of difference of opinion. Wundt was of the view that language is a means to express ideas and feelings and other kinds of mental content. According to him, communication was only a secondary function of language. But Meader considered communication as the primary function of language. According to John Dewey, "The heart of language is not 'expression' of something antecedent, much less expression of antecedent thought. It is communication; the establishment of cooperation in an activity in which there are partners and in which the activity of each is modified and regulated by partnership".¹ Thus it is apparent that meaning of language as communication was gradually accepted. The recent meaning of language is based upon the assumption that it is a kind of verbal behaviour. According to G.A. Miller, "To think of speech as audible movement and comparable to movements of the arms and legs is to think of speech as vocal behaviour". He further states that verbal behaviour involves a communication system. According to him,

¹ Dewey, J. *Experience and Nature*, 1926.

"All communication systems include, in one form or other, five components; the source of information, the transmitter to encode the information into communicable form, the channel that conveys the coded information through the space or time, the receiver to decode the message, and the destination of the information".² Thus now-a-days the psychology of language is being studied in great detail and it is hoped that in future this branch of psychology will be fully developed.

The meaning of language is further clarified when we go into its function. According to K. Bühler, there are three functions of spoken language : representation, expression and appeal. In other words, spoken language occurs in a social situation. As pointed out by Miller, there are various factors involved in the communication system. These factors have been more or less stated by other psychologists in different words. For example it has been pointed out by McGranahan that a speech phenomenon involves the speaker, the listener and the message. According to Gardiner, the functions of language can be understood keeping in view the four factors—the speaker, the listener, the words spoken and the objects referred to. Thus we see that functions of language involve not only the speaker but also the listener and the objects referred to in the speech. But it has to be borne in mind that there is also a kind of inner speech which the individual uses for his own thinking. That is why Vigotsky has emphasized the fact that distinction between the external and the inner speech *and thought must be made*. According to him, "Without a correct understanding of the psychological nature of inner speech there is no way of explaining the relation of thought to words in all its complexity...." He further points out that, "thinking and speech are the key for understanding the nature of human consciousness".³

Stages of Development

Studies have been made to discover the various stages of language development in children. According to Dorothea McCarthy, "a basic mastery of spoken language is normally acquired very rapidly during the pre-school years usually between the

² *Language and Communication*, 1951.

³ Vigotsky, L. S. "Thought and Speech", *Psychiatry*, 1939.

ages of one and five years, and the child whose language development is seriously delayed for any reason labours under an almost insurmountable handicap in his social and academic relationships. The earlier a child can acquire facility in linguistic expression, the sooner he is free to reap the benefits of the use of this valuable tool in all his social and intellectual pursuits".⁴ As regards the various stages of language development it has been observed that in the beginning child expresses himself through reflex sounds and feeble gestures. This is the beginning of language development. It is followed by babbling sound. Later on the child is able to use simple words. The fourth stage is that when the child begins to use more or less meaningful one word sentences. The fifth stage of his language development is indicated when he is able to combine words into thoughtful units. In other words in the fifth stage the child has the ability to use language in a structured form. The final stage of language development is reached when the child is able to acquire the mastery of the language arts.

It should be kept in view that from the beginning of its development language has social significance. It helps the growing child to communicate with others in regard to his wants and needs. It has also been observed that the earliest form of expression is overt. But later on the child is able to acquire the ability to suppress his impulse to talk loudly. In other words with increase in age and experience the child develops the ability to talk to himself silently. This is known as silent speech which is another name for thinking. Thus in the matter of expression it has been noted that in the beginning it is overt and then after some time it becomes sub-vocal and finally it acquires the shape of silent speech.

The development of language in children is related to their wants, interests, etc. For this purpose he has to achieve mastery of four aspects of intercommunication. First of all he has to understand what others say. Then he must develop a vocabulary of his own. The third aspect is that he should learn to pronounce words correctly. The fourth and final aspect of intercommunication through speech is that the child must be able to use acceptable sentence structure. These four aspects of intercommunication are related with the stages of language development. In the beginning a child learns to understand the meaning of words

⁴ *Ibid.*

and sentences and then gradually he begins to develop his own vocabulary. The first stage of the language development is marked by imitative repetition of words the child hears. He takes joy in producing different kinds of sounds. It has also been observed that in the first stage of language development the child uses the noun words in a general sense. Thus all women for him are 'mamma' and all men are 'daddy'. There is a tendency to use noun words to express action of one kind or another. This is, according to some psychologists, the word sentence. That is in the first stage of language development the child expresses himself by means of one word sentences. When he says milk, he means that he wants to drink milk. Later on the child may be able to use simple action verbs like go, come, sit, etc. After some time he may use simple adjectives.

It has been observed that by the time child becomes of one and half years age he has learnt about 10 or 12 simple words. But it is quite possible that the range of words during this period may extend from three or four words to hundred simple words. When the child attains the age of two and half years his vocabulary is of about 300 words, although some studies have shown that a few children could have vocabularies extending into a thousand words. These are exceptional cases.

Between the ages of two and three a child still uses one or two word sentences. But later on he begins to use longer sentences. During this period he may also use pronouns like I, you and me. It has been observed that three year old children are generally talkative. They talk a lot and experiment with their own language. From the age of 4 to 5 years we can observe improvement in the sentence structure. During this period the child not only talks to others but also to himself. A four or five years child is likely to ask many questions and he does not wait for an answer before he asks another question. The child is amused by his own power of expression and he goes on practising his own power of speech.

At about the age of six the child shows a satisfactory control over an expression. It has to be noted that this is the age when the child is admitted in the primary school. Thus the age of six marks the beginning of formal education. As regards the language development it has been observed that six year old children develop an understanding of the different meanings of a word.

They also do not have the proper idea of pronunciation and grammatical uses. But later on after the age of six the child may develop a readiness to use language as a means of intercommunication as well as learning. The environment of the family and school provide sufficient social experiences to the child which are helpful in his verbal speech patterns.

Factors of Speech Development

It is desirable that we should consider those factors that affect speech development. But before we do so let us know the difference between language and speech. Language is a method of communication by means of symbols that may be written or vocal. But speech is a system of thought communication which is based on only symbolic vocal sounds. Thus it is quite apparent that speech is oral language and does not include the written language. Keeping in view this difference between language and speech let us now take up the factors that influence speech development. These factors are : (1) General growth rate, (2) Sex, (3) Intelligence and (4) Socio-economic condition.

It has been observed that the general growth rate of the child affects his speech development. If the growth rate is very rapid the speech development is also rapid. On the other hand there may be children whose general growth rate is rather slow and therefore, his speech development is also slow. Ignorance about this factor among parents produce anxiety. Parents of those children whose speech development is slow become anxious when they observe other children making rapid speech development. It is desirable that parents should know about the influence of general growth rate on speech development in children.

The factor of sex also affects speech development. It has been found that girls begin to speak earlier than boys. There is also noticeable difference with regard to length of sentences, grammatical usage and other speech patterns. Studies have shown that girls excel in this respect also. They use longer sentences earlier than the boys do and their development of speech patterns is also better than that of the boys. This superiority in speech found among girls continues upto Maturity. But afterwards it has been found that some boys excel girls in their maximum development of their speech. Nonetheless the important point is that girls have an advantage over boys in speech development. As regards

the factor of intelligence it has been observed that the level of mental alertness at any stage of a child influences his development of speech. For example a child who is bright may begin to talk as much as four months earlier than an average child. On the other hand a mentally retarded child may be found three years behind in his speech development from the accepted norm. Thus it is quite clear that the level of intelligence of a child influences his speech development.

The socio-economic condition of a child also affects his speech development. A child born in a prosperous family has better facilities for his speech development than a poor child. According to some psychologists the unfavourable socio-economic conditions may create a difference of eight months in regard to speech development. In other words, two children of average intelligence born into prosperous and poor families may differ in their speech development by eight months. Thus it is apparent that a child born in a rich, educated and cultured family has all the facilities for his speech development. He has good models of speech to imitate. He listens to radio at home and thereby acquires good speech habits. There are certain other conditions in the family which affect speech development. For example twins and triplets are slow in their early speech development than the single child. This is due to the fact that twins or triplets satisfy their need for communication among themselves and they do not depend upon adults. But in the case of the single child the situation is different. He has to communicate with grown-up individuals and thus he learns the desirable forms of speech.

There are other factors which hamper the proper development of speech. For example if the parents of a child belong to different nationality and speak different languages then the child is in a difficult position. He is unable to follow one example of speech. The speech of his father is different from the speech of his mother. Thus bilingualism in the family creates difficulties in the speech development of the child. Then there may be factors related to the child's all-round development. For example there may be a child whose maturation is slow and, therefore, his learning also becomes faulty. In other words, speech difficulties are created due to organic defects in a child. Organs connected with speech have to be properly developed and in cases where organic and physical development has been unsatisfactory, speech difficulties are

liable to occur. In certain cases emotional tensions develop speech difficulties. Fear of failure or a feeling of insecurity in a child may develop in him such speech difficulties as are observed in the form of stuttering and stammering and other forms of speech defects. Difference between stuttering and stammering should be noted here. In stuttering the individual has to repeat sounds, words and phrases but in the case of stammering the individual is unable to produce any speech sound. He may gasp, hesitate, gasp again and finally produce the desired word. Thus we find that in stammering there is a lot of facial expression and movement. This results in nervousness and develops emotional tension in the stammerer. If the speech difficulties are mainly psychological in nature and no organic defects is present it can be cured with great patience.

Development of Reading Ability

We have considered so far the speech development. Now we shall take up the development of reading ability of a child. It has been observed that in the beginning reading ability is indicated when a child of less than three year's age is able to identify simple and detail free pictures. A child of 15 months is generally able to point out a picture in a book which he has previously seen. After some time he may recognize the picture of an animal by producing sound similar to the sound of the animal concerned. For example the child may point out a picture of a dog by saying 'bow-wow'. Thus before the age of three the development of reading ability is mainly in the form of recognition of pictures in the book and the imitation of sounds of animals found in the environment of the child.

By the age of four the child is generally able to recognize several capital letters. He is likely to associate the first letter with a name or object. For example the letter 'c' may be associated with cat and so on. In the western culture it has been observed that five year old children are able to identify word science such as stop and go. In other words, the five year old children develop the ability to recognize word symbols. At this age he is fond of listening to stories and, therefore, he enjoys when a story is read to him. The story-book is placed before the child and the parent or the teacher may read it and the child may observe the pictures in the story-book.

When the child attains the age of six he is admitted in the primary

school and there he starts learning to differentiate between different types of letters and recognizes words and word combinations. Now he is more interested in words which relate to his personal experiences. By the age of seven the child is able to read books meant for him. Sometimes he may commit mistakes and omit words or syllables. Nonetheless he likes to read loudly. While reading the child may not follow the idea contained in it. But he enjoys reading loudly without caring for the meaning. At this age some children have been found reading silently. Thus we can say that by the age of seven or eight the children begin to read silently. After a year when the child attains the age of nine, his interest in reading stories about places and objects increases. Now his silent reading is also improved because he tries to understand the meaning of what is being read by him. This is done in a better manner by reading silently. It has been observed that nine year old children still prefer oral reading to silent reading when they want to memorise certain facts. In other words oral reading is more helpful than silent reading in memory work.

There are certain factors which influence reading development. After the age of nine the average child progresses well in his reading ability provided his education is satisfactory and receives encouragement from his parents and teachers. Besides this, the factor of language differences is important. It has been found that visual and auditory acuity, mental ability and environmental conditions exercise a considerable amount of influence upon the development of reading ability. Emotional factors may also affect reading development. For example if a child is slower than other children of his age group in reading, he may lose self-confidence and may develop a dislike for reading. Thus the teachers have to be careful and to avoid such situations as are likely to hinder the reading development of a child. According to Schonell there are five factors involved in the development of reading ability of a child. They are :

- (1) General maturity,
- (2) Level of general intelligence,
- (3) Abilities of visual and auditory recognition and discrimination of word patterns,
- (4) Environmental factors in reading ability,
- (5) Emotional attitudes of interest, individual application and confidence.

Schonell has stated that "these five sets of factors, mental and environmental, act interdependently to produce the composite power of reading ability".⁵ In other words, development of reading ability is affected by a number of factors at the same time. Not only these factors but also the general growth and development of the child affect his reading ability.

Development of Writing

The development of writing ability in the child is related to other aspects of language development. But for writing purposes the child has to acquire skill of penmanship so that whatever he writes could be read easily. This is possible only when the child is able to coordinate his finger movement and manipulate his pen according to his wishes. He should also have the ability to arrange words in simple sentences. Thus the development of written expression requires on the part of the child skill and penmanship and a knowledge of simple word structure. During the course of his formal education the child's ability to write correctly increases and he is encouraged to express his feelings and thought in written form.

There are certain difficulties which a child has to face while learning to write. For example one of the common difficulties faced by a child in writing is that he does not know the right word for what he wants to write. Secondly he may not know correct spelling of words written by him. Thus one of the major difficulties in writing faced by children is related to choice of proper words and spelling. This difficulty is removed if the education of the child is satisfactory. In other words, if he is taught those words which are related to his experiences, it would be helpful in expression of his ideas. Thus efforts have to be made to teach children proper use of words as well as their correct spelling. The factors affecting speech and reading abilities are also involved in the development of writing ability. Psychologists are not agreed upon the fact that superior ability in written expression is hereditary or not said. In other words, whether excellent writing ability is inborn or acquired cannot be definitely said at the moment. But it has been observed that in certain families there have been a number of writers. This is explained on the ground that a child born

⁵ Schonell, F. J. *The Psychology and Teaching of Reading*, 1961, p. 24.

in a writer's family is likely to develop interest in writing. Thus favourable environmental conditions play an important role in the development of written expression.

The present position

Prof. John B. Carroll⁶ wrote an article in November 1957 summing up the present position with regard to language development in children. He pointed out that there has been a great interest in the study of child language learning, specially by students of the science of language, for they wanted to know whether "the gradual changes in languages over generations are to any extent caused by the variations observed in children speech as compared with that of their elders...." This is an important problem which still needs solution. Nonetheless the students of science of language are studying it and hope to find out an answer. Psychologists have also been engaged in the language learning processes of children for they have realized that "language holds the key to many fundamental problems of behaviour". In the third group which is interested in the study of language development in children is that of educators for they want to plan education, specially the curriculum, keeping in view the language development of a child. They have also to plan special educational programmes for handicapped children.

Prof. Carroll has explained the nature of language and pointed out that "a language is a structured system of arbitrary vocal sounds and sequences of sounds which is used in interpersonal communication and which rather exhaustively catalogues the things, events, and processes of human experience". He has also referred to the social aspect of language and emphasized it. As regards the language learning process Prof. Carroll has referred to some of the important studies. For example a study by Werner and Kaplan was devoted to the problem of the development of word meaning through verbal context. It was an experimental study and the investigators found how word meanings develop. Recently (1957) B.F. Skinner published a book entitled *Verbal Behaviour* which throws light on the reinforcement theory according to which it is believed that "the child tends to learn whatever responses are reinforced either by some immediate, drive-

⁶ Harris, C. W. (Ed.) *Encyclopaedia of Educational Research*, III. Ed.

reducing reward or by some indirect secondary cue of an eventual reward....” Further it is pointed out that responses which are not so reinforced tend to drop out.

Summarizing the language learning process in a general way Prof. Carroll states that throughout his language development, the child learns different aspects of language in terms of his needs, likes and dislikes. In the beginning of the language learning process the responses of the child are generally gross and undifferentiated. But with the passage of time these gross and undifferentiated language responses become structured and differentiated. The theory of imitation also operates at this stage and the child learns language by imitating his elders. But it has to be noted that there is comparatively less awareness on the part of the child of language subtleties, shades of meaning and grammatical rules. According to Prof. Carroll, “there are probably clear and relatively uniform developmental sequences in the distinctions learnt, but investigators have failed to trace these in sufficient details and have almost completely overlooked such features of language as intonation patterns....” Thus Prof. Carroll has pointed out the limitations in the studies of the language learning process.

Studies have been made to determine the effect of an educational programme upon language development in children. One such study was made by H.C. Dawe in 1942. In this study the educational programme included stories and pictures, discussion and excursions. The subjects were eleven pre-school children who lived in a culturally poor orphanage. The control group consisted of the same number of children with similar age, sex, I.Q. and vocabulary status. The experimental group received 50 hours of training. After the training it was observed that children in the experimental group were superior to the control group children in terms of vocabulary, home living and science information, etc. Thus it was concluded that an enriched language experience programme for neglected children was effective in stimulating language-intellectual growth. Other psychologists and educators have also been concerned with the problem of the effect of enriched language programme of language development in children.

As stated above language is a means of communication and is an important instruction of social living. It is, therefore, necessary

to know the family and the culture of the child for his language is a product of his family and culture. Children when admitted in a school bring with them different kind of language and culture and the teacher has to prepare ground for their language education in a manner that they learn the general language pattern representative of their total culture. It is one of the most difficult problems facing language teachers for they have to plan their teaching in a manner that the previous language learning of the child is utilised. According to Prof. Carroll educational research pertaining to language teaching is not sufficient to provide definite rules for guidance of language teachers. Underlining the importance of language teaching programme Prof. Carroll observes, "the school can foster the cognitive development of the child best when it is realized that the child brings to his school years a rather large variety of concepts, as represented by a large vocabulary, but that the many gaps which still exist in his verbal response system must be filled in as natural a way as possible. This can be done by providing many pertinent experiences and establishing learning conditions which will allow the child to see relevant distinctions in meaning and differential classification of concepts".⁷ Thus it is apparent that the present position of our knowledge concerning language development in children is still not as satisfactory as it ought to be. More work has to be done in the area of language teaching so that the psychology of language is fully applied to the problems of language teaching in our schools.

CHAPTER 7

THE EXCEPTIONAL CHILD

The Nature of the Exceptional Child

Studies of individual differences have emphasized the need for planning education for children of different mental abilities and capacities. Some children are either above normal or below normal. In other words, the average type of education which is suited for average children is not desirable for those who are not average. The term 'exceptional' is used for those children who are not average. What do we exactly mean by the exceptional child? It is extremely difficult to define this term. The term is big enough to be limited in a few words of definition. Nonetheless efforts have been made to describe the exceptional child. Prof. W.M. Cruickshank¹ has given the following definition of the exceptional child :

He is first and foremost a *child*. Secondly, he is a child who deviates from the normal in some degree or other. Too frequently the community forgets that these children are children. Too frequently the handicap is the facet of the child's life by which he becomes known to his teachers, to his friends, and even to his parents. . . . The degree to which the child with a handicap is accepted by his peers, his family and his community as a *child* and the degree to which he can accept himself as a *child* will determine the extent to which he becomes an exceptional child.

Thus it is apparent that the term 'exceptional child' is a loose one and stands for a child who has uncommon or abnormal physical, mental or social development. In other words, the exceptional child can be gifted or backward.

The problem of the exceptional children who are either gifted, retarded, backward or handicapped, needs thorough enquiry. There is first of all confusion in regard to the usage of the terms backward, retarded, handicapped, etc. It has been observed that the term 'backward' has been widely used by British psychologists

¹ Cruickshank, W. M. *The Exceptional Child in Contemporary Education*, 1952.

and the American psychologists are prone to use the term 'retarded'. Thus in the literature on the exceptional child we find different types of exceptional children described. Let us consider the following definitions of different types of exceptional children and observe differences if any :

(1) *Backward Child* : A general term referring to a child whose growth has been below the normal rate in a given aspect of educational, mental, social, emotional or physical development.

(2) *Retarded Child* : (i) A child who fails to develop at the rate of the average child because of intellectual, social, emotional, educational or physical factors, singly or in combination; (ii) a child whose present grade placement is lower than the normal expectancy for the number of years of school attendance.

(3) *Handicapped Child* : A child whose physical, mental, emotional, educational or social condition places him at a disadvantage in comparison with a normal child. (Mentally gifted children are sometimes so categorised on the assumption that normal educational procedures are handicapping to them.)

The above three definitions have been taken from the *Dictionary of Education* edited by C.V. Good. These definitions indicate a very close resemblance between the three types of exceptional children described above. In the case of backward child we find that it stands for a child whose development has been below normal. This development may be of any kind. The retarded child on the other hand is also like the backward child. There is no point of major difference between the two definitions. But there is another definition of the retarded child given above which emphasizes the fact that when a child is not in a class in which he ought to be in terms of his age he is considered as retarded. In other words, a child of ten years is normally in V class. But when we find a ten year old child in Class III or Class IV, he is retarded child for he is not studying in a class in which he ought to be according to his age. Thus it is clear that the term retarded child is also employed for children who are below their grade-placement in terms of their age. As regards the definition of the handicapped child the same factors are there as are found in the backward or retarded children. But the main fact is that it emphasizes on the barriers created by certain physical, mental, educational or emotional

factors. In other words, if these handicaps were not there the child would have been a normal one. But he becomes handicapped on account of certain factors which place him "at a disadvantage in comparison with a normal child". We have to remember here that even mentally gifted children are also categorised as handicapped for the prevailing educational system does not care for their proper mental growth. Normally we think that a handicapped child is mentally retarded child. But it is to be kept in view that even mentally gifted children are also handicapped.

The Types of Handicapped Children

We shall now consider exceptional children in terms of their handicaps and therefore, we employ the term 'handicapped children' instead of exceptional children for the nature of a handicap will be helpful in describing the various types. There are four broad types of handicapped children. These are: (1) The physically handicapped, (2) The mentally handicapped, (3) The socially handicapped and (4) Those which combine all three. These are the types of handicapped children generally observed in school or society. But there can be further classification of these types. For example Frampton and Rowell have given the following subdivisions of the physically handicapped: (a) Those whose handicap involves one or more special senses, including the blind, the partially sighted, the deaf, the hard of hearing, and the deaf and blind; (b) Those whose handicap results in motor disability or limitation, including orthopedic cases (infantile paralysis, spastic conditions, osteomyelitis, bone tuberculosis, and congenital defects and deformities); cardiacs; those suffering from respiratory diseases in certain stages; malnutrition cases; (c) Those with various types of defective speech of whatever origin.

Then they have also provided further categories of mentally handicapped children. These are:—(a) Persons who in natural intellectual capacity fall in the lower ranges of human intelligence; (b) Persons who have suffered accident or disease resulting in the impairment of mental functions; (c) Persons suffering from emotional instability, psychopathic states and insanity.

Thus we find that there are various types of handicapped children and there cannot be any finality about their classification or categories. We shall now take up the problems of the physically handicapped children,

PHYSICALLY HANDICAPPED CHILDREN

We have familiarized ourselves with the types of physically handicapped children. It is thus apparent that the term 'physically handicapped' is applied to those who have some physical defect which is either innate or acquired. Some psychologists take up certain types of physically handicapped children for purposes of discussion from educational point of view. These are the deaf, hard of hearing, blind, partially blind, crippled, cerebral-palsied, and such as suffer from certain health problems and diseases.

The physically handicapped child is dependent upon someone else for fulfilment of his needs. If the child is confined to bed due to ill-health he has to be cared for by some one. If a child is blind his movements have to be guided by another person. Thus the physically handicapped children are dependent upon another person in order to overcome their difficulties. It is apparent that the social mobility of the physically handicapped is very much restricted. He begins to have pity on himself and feel frustrated due to his limited functioning. Thus physically handicapped person automatically becomes socially handicapped due to his inability to participate fully in his social life. Not only the physical handicaps make a person socially handicapped but they also create psychological problems for the individual may suffer from emotional conflicts, mental tensions and frustrations. He may develop an ugly image of himself. Thus it is clear that some kind of physical handicap leads to social and psychological handicaps as well. In other words, the repercussions of physical handicaps are both social and psychological. It requires great insight on the part of the teachers of the physically handicapped children to avoid the adverse social and psychological repercussions on the physically handicapped children. Thus there are a number of problems to be tackled as regards the care and education of the physically handicapped children. The first problem is how to minimize the physical difficulties faced by a physically handicapped child. In other words, all the kind of physical and medical aids should be provided that a physically handicapped child feels comparatively less handicapped. Such cases of physical handicaps which are innate cannot be cured. But those physical handicaps which are acquired can be cured in certain cases and their painful effect can be minimized in other cases.

The other problem in the education of the physically handicapped child is to provide him with such experiences as are likely to help him in social and emotional adjustments. In other words, there is a problem of avoiding such social and psychological hazards as are likely to be created by a physically handicapped child. As stated above due to physical defects a child or a person may develop certain types of conflicts and complexes and suffer on account of them. Alfred Adler has very well discussed the impact of physical defects on human personality and how it leads to psychological complications and develop a feeling of inferiority.

The Blind Child

Blindness is one of the major physical handicaps faced by a large number of children. It may be due to hereditary causes or the result of a disease or an accident. It has been found that in many cases of blindness it was possible to prevent this disease. In other words, many children become blind for lack of proper treatment. There are pseudo Surgeons who operate upon an eye and thus create further complications. As regards blindness in India it has been found that there are about 20 lacs people suffering from it. This is almost 1/5th oblique population of the world. The same survey has also revealed that 60 to 80 percent of the blindness in India could be prevented. An investigation into the causes of blindness in India revealed that diseases like cataract, retinas, glaucoma, trachoma, etc., are due to hereditary and environmental causes. Children who do not get proper nourishment for their study develop visual defects after some time.

Education of the Blind

Before we discuss the nature of the blind it would be desirable to acquaint ourselves with the types of visual defects that are generally found. According to the American Medical Association the following are the types of visual defects :

1. *Absolute Blindness* : inability to perceive light.
2. *Economic Blindness* : inability to do any kind of work for which sight is essential.
3. *Vocational Blindness* : impairment of vision which makes it impossible for a person to do work which he had formerly done to earn a living.

4. *Educational Blindness* : such loss of sight as makes it difficult, dangerous, or impossible to learn by the methods that are commonly used in schools. For sight-conservation classes the requirement is vision in the better eye of less than 20/70 and better than 20/200. For admission in to a school for the blind the vision in the better eye must be 20/200 or less (with correction).

For the education of those children who are suffering from absolute blindness the Braille system was developed. This is based upon a mechanism by which the letters are raised over the surface and the blind child recognizes them by his touch. One of the latest trends in the education of the blind is to provide him what is now known as 'integrated education'. This means that a blind child should be given education like any other average child along with special assistance in subjects like Braille reading, Mathematics, Geography, Science, etc. This is the integrated education for the blind. Recent technical inventions have also provided special help for the education of the blind. For example the tape recorder and the gramophone records serve like talking books. Recently an invention was made in Britain of a tape with 18 tracks, each track playing for 17 minutes. Thus we can imagine how useful it is for the education of a blind person to listen to these tape records of various subjects. In the Soviet Union recently a new machine has been invented "which scans the printed page and translates the visual word into a kind of Morse code".

In India the first school for the blind was established in 1887 at Amritsar. Later on it was shifted to Rajpur (Dehra Dun) in 1890. In all 34 schools were opened during the period 1887-1947 and after independence the number of schools for the blind has risen to 90 by 1960. This shows the interest of our Government in the welfare of the blind. As stated earlier integrated education is desirable for a blind child and other mechanical devices as are likely to be useful for him should be used, and gradually made available at cheaper rates so that they may be widely employed in the education of the blind. According to C.A. Amesur, "the success of an educational system is judged by its human products. That the education of the blind in this country has stood this test is clear from the fact that we have a blind member of Parliament, Shri Sadhan Chandra Gupta who is also a renowned Barrister. Shri Lal Advani has been working in the Ministry of Education

for a number of years with considerable credit to himself. Those of us who have had close dealings with the Ministry of Education have found him a valuable asset".

The main factor in the education of the blind is to provide him with such skills as are likely to remove the visual barriers created for him. In other words, the blind child should learn such techniques as are helpful for him in acquiring knowledge and skill in his social life. It has to be remembered that every person possesses some unique quality. In the case of the blind we have to discover the unique capacity or ability which he has and develop it to the maximum. It is the law of nature also to provide compensation for what is lacking. The lack of the sense of sight is compensated when the blind person acquires musical ability. Thus it is apparent that in the education of blind children of all types efforts should be made to provide them such experiences as develop in them self-confidence and help them in overcoming their social and educational handicaps. Though considerable amount of work has been done for the education of the blind child yet more remains to be done. There should be planned studies which may throw light upon the social and psychological problems of the blind and the ways and means to solve these problems. In foreign countries some studies have been made pertaining to problems of the blind in all spheres of life. "Cumulative results from a number of studies indicate that the blind are able to perceive and avoid obstacles by change in pitch as they approach an object. Other factors, such as change in loudness, odour, air currents, and heat radiation, are considered secondary or unimportant, although they may be helpful to persons in whom the pitch cue does not operate. The obstacle sense seems to exist naturally in some blind and some sighted individuals but may be learned by others providing that hearing is acute and intelligence is near normal or above. Practice improves the obstacle sense, though to varying degrees in each individual. The findings have important implications for education of the blind, and they give an indication of the progress possible through concentrated systematic research, the type of research which is still rather uncommon in the field of blindness." These observations have been made by M. H. Fouracre in the *Encyclopaedia of Educational Research* (III Edn.) Thus it is quite evident that much remains to be done in the area of education for the blind even in an advanced country like the U.S.A.

The Deaf Child

The problems of the deaf child are also such as require the full attention of educators and social workers. But before we go into the details of these problems and their causes, we should define the deaf. According to a definition, "the deaf are those in whom the sense of hearing is non-functional for the ordinary purposes of life". In other words, when a person is unable to use his sense of hearing in his social living he is considered deaf. There are certain measures of deafness which are based upon the ability of an individual to respond to a power tone. The instrument used is audiometer and its units are decibels. When a person indicates a loss of over 60 decibels he is regarded as deaf. According to Mackie when a child's ability to hear is so impaired that he cannot understand connected speech through the ears even with amplification he is considered deaf. Thus, there are various approaches to the ability to communicate with the help of hearing. When the sense of hearing is damaged the individual is likely to become deaf. We cannot go here into the medical details of deafness. For our purpose it is sufficient to note that deafness is one of the physical handicaps of children and it requires our special attention.

Causes of Deafness

In 1952 the Government of India through its Ministry of Education held a survey of 105 hospitals in order to find out the causes of deafness. The following causes were discovered:

- (1) Otitis media (2) Acute infectious diseases (3) Septic tonsils
- (4) Adenoids (5) Chronic rhinitis (6) Malnutrition (7) Eruptive fevers (8) Cerebro-spinal meningitis (9) Smallpox (10) Congenital syphilis (11) Malaria (12) Mumps.

A study of these causes will reveal that they can be classified into two groups. The first group is known as congenital. The second group of causes is acquired. It is possible to control the acquired causes of deafness. But there are other factors which create problems for the deaf. These causes of deafness and the associated factors first of all lead to the problem of the acquisition of the power of speech. It is important to bear in mind that normally the speech organs of a deaf child are in good condition. But due to his inability to use them he loses the power of speech as well.

Thus "the handicap of deafness gives rise to two formidable problems : first, the acquisition of the power of speech, and second the adoption of a suitable means of understanding the spoken language".² Further it has been observed that these problems create difficulties in the education of the deaf. In this connection it is emphasized that "speech is not natural but an acquired faculty and depends upon the imitation of the spoken word". Since speech is an acquired faculty the problem of teaching the deaf becomes complicated. But it has been gradually solved by a process known as lip-reading.

Education of the Deaf

The education of the deaf child is primarily concerned with the teaching of lip-reading. The deaf child is taught to interpret the movements of the lip and thus to follow the idea expressed. This is in a way the main part of the education and training of the deaf. It has been observed that a considerable amount of time is taken by a deaf child in learning to interpret speech by lip-reading. Since this is a lengthy and time consuming process the deaf child is likely to be behind the normal child. A comparative study of the deaf and the normal children has shown that an average deaf child takes about 8 to 10 years to reach the upper primary grade which is normally reached by an average child one or two years earlier. Then there is the problem of curriculum. Normally the curricula for the deaf and the average children are the same. But there is one difference that the deaf children are required to devote more time in acquiring manual dexterity for later in life they have to depend upon some manual trade.

In India the first school for the deaf and mute was established in 1884 in Mazgaon, Bombay. After some years in 1893 the Calcutta Deaf and Dumb School was started. Three years later the Church of England Zenana Mission School, Palamcottah was established. After that several other schools were opened as the facilities for training of teachers of deaf and dumb were provided. At present there are three schools for the training of the teachers of the deaf at Lucknow, Calcutta and Palayamkottai. These training institutions are supplying trained teachers for schools in various parts of the country.

² *Social Welfare in India* (Publications Division), 1955, p. 277.

Mention may be made here of hearing aids which have been recently invented for the benefit of the deaf. In Western countries hearing aids are provided to those deaf children who can take advantage of these aids. Thus in the case of partially deaf children hearing aids have been found very useful. Then the use of visual aids are also useful in the education of the deaf. Deaf children can see educational films and thus learn about the world in which they live.

The Crippled Child

The third category of physically handicapped children is that of the crippled. A child is considered crippled when he develops "a defect which causes a deformity or an interference with normal functioning of the bones, muscles or joints".³ As regards causes of this handicap it has been found that infantile paralysis, congenital deformities, traumatic deformities, bone and joint tuberculosis, osteomyelitis, spastic paralysis, etc. make a child crippled.

Efforts have been made to study the intelligence of the crippled children and it has been found that, "crippled children have been consistent in reporting a wide range of intelligence with the average quotient in the eighties. There is some evidence that children crippled by poliomyelitis are on the average superior mentally to other crippled children". As regards the education of the crippled there are at present 12 schools in India. About one thousand crippled children receive education in these schools. The curriculum of these schools not only includes the three R's but also instruction in occupational therapy and physiotherapy. The first physiotherapy centre was started in India in 1953 at the K.E.M. Hospital, Bombay. As regards the occupational therapy centre it was started at the same place in 1950. Thus Bombay has been a pioneer in the education and rehabilitation of the crippled. Recently other states have also taken steps for the education and welfare of the crippled and the agencies like UNICEF are helping a great deal.

MENTALLY HANDICAPPED CHILDREN

Another important category of exceptional children is that of

³ Wadia, A. R. (Ed.), *History and Philosophy of Social Work in India*, 1961, p. 335.

mentally handicapped children. A child who is born mentally deficient or becomes so due to psychological and environmental factors is considered as a mentally handicapped child. There has been a considerable amount of confusion as regards the definition of the mentally handicapped. A review of the literature will indicate the various aspects of this problem. Terms like backward, retarded have also been used for mentally handicapped children. A study of the history of this problem indicates that interest was aroused in this area of the education of the mentally retarded or deficient by the end of the 18th century. The famous French "Wild Boy" discovered near Aveyron forest in 1798 attracted the attention of the psychologists towards the problem of teaching the mentally handicapped. Since then there has been other cases which have emphasized the need for the education of the mentally handicapped children. But the pioneer work was done in Paris when Seguin established a school for the training of the feeble-minded in 1839. After this there were other schools opened in England and Switzerland. At present there are schools for the education of the mentally handicapped in the civilized countries of the world.

Classification

The classification of the mentally handicapped children has been a problem. In the past the terms like "simpleton, fool and idiot" have been used indicating the various levels of intelligence. The present view is that a person who has an I.Q. of 70 or less is to be considered as mentally defective. But Doll has objected against this criterion of I.Q. being applied in cases of mentally handicapped persons. The following is the objection as stated by Doll :

The use of any single I.Q. discounts the important multiple aspects of mental measurement, the disparity of results from different systems of psychometric measurement, the probable error of any single measurement of intelligence, the distinction between brightness and level, the overlap in intelligence between high-grade feeble-mindedness and low-grade normality. It employs an illogical and unvalidated statistical concept without safeguarding the welfare of the individual, his family or society. It further ignores the clinical varieties and the etiological origins. It stops short at an arbitrary statistical gate-post and does not

concern itself with the many ramifications of the conditions which if adequately explored would reveal the absurdity of its point of view.⁴

Before we proceed further it is to be noted that there is a great confusion pertaining to terminology being used for the mentally handicapped. L. X. Magnifico has very well summed up the position by his remark that, "since there is all this confusion of terminology, the only method of achieving clarity would be to set up a group of arbitrary definitions. In this context, therefore, the terms "feble-minded" and "mentally handicapped" will be used to apply to all intellectually inadequate. The terms "mentally retarded" and "mentally deficient" will substantially follow Sarason's interpretations, that is, the former referring to the educable mentally handicapped and the latter to the uneducable, nothing that there is no clear cut line of demarcation between the two—or, indeed between any of the divisions of intellectual capacity—...."⁵ It is thus evident that we have to consider the categories of mentally handicapped from different angles. Generally we find in the literature two types of classifications. Based upon I.Q. the first classification is that of Terman. According to him an idiot has the I.Q. of below 25. Likewise the other two varieties of feble-minded persons are imbecile and moron. The I.Q. of an imbecile is between 25 and 50 and that of a moron between 50 and 70. The following table presents Terman's classification of intelligence:

Classification				I.Q. Range
Genius	..	..	..	Above 140
Very Superior	..	..	..	120-140
Superior	..	..	..	110-120
Normal or Average	..	..	..	90-110
Dull	..	..	..	80-90
Borderline	..	..	..	70-80
Feeble-minded: Moron	..	..	..	50-70
Imbecile	..	..	..	25-50
Idiot	..	..	..	Below 25

⁴ Doll, E. A. "Is Mental Deficiency Cumable?" *Am. J. Mental Deficiency*, 1947, 51, 420-428; quoted by S. B. Sarason in *Psychological Problems in Mental Deficiency*.

⁵ Magnifico, L. X. *Education for the Exceptional Child*, 1958.

We shall now study the problem of mentally handicapped under three major heads: mental deficiency, mental retardation and backwardness.

Mental Deficiency

The subject of mental deficiency is an important part of abnormal psychology. As stated above the term mental deficiency stands for the uneducable persons. According to Page, "mental deficiency is a condition of sub-normal mental development, present at birth or early childhood and characterized mainly by limited intelligence and social inadequacy".⁶ He also points out that synonyms of "mental deficiency" are feeble-mindedness, amentia and oligophrenia. These synonyms are commonly used but in scientific literature the term deficiency is more acceptable. Let us now take up the types of mentally deficient persons.

Idiot

According to the classification of Terman an idiot is a person whose I.Q. is below 25. But Page mentions that idiots have I.Q. below 20 and their mental and social development is less than three years. In other words, an idiot is unable to develop mentally and socially beyond the three year's age of a normal person. It has been found that an idiot rarely attains the mental age of three years. His body-built is such as affects his movements. In other words, he suffers from physical deformities. His speech development is also late. Not only it is late but also the idiot is unable to use proper language. He most of the times, grunts and growls and at times uses a few monosyllables. It has also been found that idiots suffer from sensory defects, paralysis and convulsive attacks. As regards their capacity to work it has been found that they are unable to do anything for themselves. It is also extremely difficult even impossible to teach them ordinary habits of cleanliness. They become hungry quickly and eat like animals. In other words, idiots do not eat but devour food. Their emotional life is also crude and their behaviour is mostly motivated by anger and fear. Therefore, they become destructive frequently. Since their I.Q. is very low they are able to learn anything with great difficulty. It has been observed that idiots can be taught with great patience some

⁶ Page, J. D. *Abnormal Psychology*, 1947, p. 354.

of the simple tasks like piling wood or polishing flat surfaces. If their training is long and intensive they may be taught to dress and undress themselves. As regards speech training they are able to speak and understand only a few words.

There are certain mental defectives who possess exceptional talents and they have been termed as *idiots savants*. This term is rather misleading for such mental defectives are neither idiots nor savants. They are generally morons or imbeciles of superior quality. There is also a possibility that an idiot savant is a person suffering from schizophrenia. However, the term "idiot savant" has found currency and is mentioned in the psychological literature. Observations of some idiots savants have revealed that in certain cases there is good mechanical ability. Some of them possess very good musical ability and some have excellent memories. Page mentions that certain idiots savants have the ability to state the day of the week of any calendar date. For example if an idiot savant is asked the day of the week on January 8, 1952 he may give the correct answer within a few seconds. Not only they can give the correct day of a date of a past year but also they can tell a day of a future date. Page is of the opinion that, "it would appear from the speed with which these very defective individuals arrive at the date that they must use some simpler procedure, involving perhaps the memorizing of certain key days". He mentions the case of an idiot savant who was asked to explain the method by which he was able to tell the day of a given date. That patient immediately wrote down, "a whole sheet with figures indicating the day of the week for Feb., 29 from 1900 to 1976...." Thus it is apparent that idiots savants are individuals with uncommon abilities but they are neither idiots nor savants but generally high grade morons or imbeciles with special talents. If intensive studies of idiots savants are made, some reliable information can be had about them.

Imbecility

Next to idiocy is imbecility. Imbeciles are those who have I.Q. between 25 to 50. Their mental age ranges from 3 to $7\frac{1}{2}$ years. As we know idiots rarely go beyond the age of 3 but imbeciles are better than idiots for their mental age is higher and goes upto $7\frac{1}{2}$ years. In other words, adult imbeciles are unable to achieve a mental age beyond M.A. of $7\frac{1}{2}$ years. Since imbeciles have higher I.Q. than idiots they are able to learn to look after

their bodily needs and avoid physical dangers like fire or approaching car etc. In other words, an imbecile is able to look after himself when he is taught to do so. But as regards education, imbecile children and even grown-ups are unable to derive any benefits from school work. It has been found that the most gifted among the imbeciles are able to reach grade I in school when they are taught intensively and attain the age of 15. In other words, before their physical maturity is that of 15 years of age they learn much before education. It is to be noted that the physical appearance of imbeciles indicates their mental deficiency. They are poor in muscular co-ordination and clumsy in their behaviour. Finally imbeciles are unable to plan their work. Therefore, it is necessary that an imbecile person is carefully directed and his work is planned for him. Imbeciles are unable to earn for themselves and therefore, they are unable to support economically throughout their life. Recently there has been some research on the biology of imbecility. Walter Theimar has presented in a popular style the causal effects of bio-chemical deficiency. According to him, "scientists of the Maf Planck Laboratory of Comparative Hereditary Biology and Pathology in Berlin-Dahlem study the special genetics and bio-chemistry of imbecility. Professor F. Vogel, M.D. has reached the conclusion that the extent of genotypic imbecility is after all much greater than has been previously assumed. In the lighter forms of imbecility the hereditary character is more obvious, whereas serious cases of imbecility and idiocy are frequent as isolated occurrences in families otherwise healthy or even more than normally gifted. It used to be believed that serious feeble-mindedness is hereditary only in certain cases, and must as a rule have an exogenous cause. Research in human genetics has in recent years disproved much of this thesis.

'Mongoloid Idiocy' is a well-known type of imbecility. The name derives from the fact that these persons usually have a small head, a flat face with narrow eyelids, and a typical physique. They are mostly good-natured. In most cases they are children of older mothers in healthy families. Their brothers and sisters are healthy. There are rare instances in which two or more brothers or sisters are mongoloids, but in these cases the mothers are young. Mongoloid idiots usually have one chromosome too much. The chromosomes are found in the nuclei of all cells and carry the genes, the factors of heredity. The genes are probably sections of long chemical

chains known as the nucleic acids. There is one pair of each type of chromosome. Man has 23 to 24 pairs, the number 23 prevailing according to recent research. Now chromosome nr. 21 is present three times instead of twice in mongoloid idiots. This is called trisomy. The excess chromosome upsets the whole development of the child and produces the idiotic type. Trisomy is due to some break-down in the mother's ovary during meiosis. Older women seem particularly liable to it. Familial mongolism is also due to trisomy. But in these rare cases the third nr. 21 chromosome has almost invisibly attached itself to chromosome nr. 15. This is called translocation.

Other forms of chromosomal imbecility are due to an excess chromosome. They are again frequent in children of mothers past their prime. The X chromosome is the female chromosome. Two X chromosomes in every cell are typical of woman, while one X and one Y chromosome are characteristic of the cells of men. The occurrence of the XXX or XXY groupings means imbecility.

Numerous kinds of feeble-mindedness are due to mutation of some genes. While numerous as a whole, the single types of this deviation are extremely rare, in fact about one case in 40,000 births. They are caused by a genetic block. One of the activities of genes consists in producing enzymes to mediate chemical processes in the body. If one gene is defective, the corresponding enzyme fails to be produced. Some biochemical step in the metabolism is blocked, because it would need this particular enzyme. This occurs especially in the metabolism of the amino-acids, phenyl alanine and tyrosine. Some forms of this block do not cause imbecility, but other trouble. The well-known albino type owes its lack of pigment to such a block, while another block of this kind causes alcaptonuris, a disease troublesome in old age.

Much worse is Block 'A'. Such patients lack the enzyme, phenyl alanine oxidase. They cannot, therefore, oxidise phenyl alanine to tyrosine as in normal metabolism. It is converted into poisonous phenyl pyruvic acid and other toxic compounds. This chemical derangement leads to most serious imbecility with side-effects ranging as far as epilepsy. The condition is hereditary on a recessive basis, which means that one or both parents are healthy but carry the pertinent gene in an almost ineffective form—not a direct imbecility gene, but just the 'A' block gene. If given substantial doses of phenyl alanine, they show signs of weakness in the enzyme

concerned, though they do not normally suffer from it.

By giving or withholding the substances involved, physicians are today able to reduce the consequences of a biochemical block in such cases as in certain other hereditary disease.⁷⁷ Thus it is now realized that any treatment of imbecility has to take into account various causal factors which lead to biochemical deficiency.

Morosity

Morosity is indicated when the I.Q. is between 50 and 70. Morons develop any apparent physical defects like idiots or imbeciles. Therefore, they cannot be recognized easily. The mental age of a moron is generally between 7 to 12 years. Thus a moron can be taught elementary habits of cleanliness as well as attain elementary education. But as regards reasoning and judgement it is lacking in them. They usually live by habit. Other mental powers like that of memory and education are also not found in them. Since various mental powers are inter-related, lack of one leads to lack of another mental power. As stated earlier it is not easy to recognize a moron from appearance. But when we examine his behaviour and expression we notice a general lack of originality, reasoning, judgement, constructive imagination, etc. Morons also lack aesthetic sensibilities. Their humour is crude and due to their faulty social behaviour they create a lot of problems. Morons have been used by expert criminals as tools for the commission of crimes since they are unable to understand the hidden purpose behind a suggestion. When a moron is properly taught he can learn simple 3 R's. A gifted moron can hardly receive education beyond the IVth grade. As regards his earning capacity it has been found that a moron can do such work as can contribute to his living expenses. Morons can be trained to do such works as are not complicated. For example a moron can do general house work, laundry work, distribution of newspapers and care of animals. Since morons develop reasoning and judgement abilities they are unable to make any plans for future and they spend their money foolishly.

Studies have shown that the number of imbeciles is greater than the number of idiots and number of morons is greater than the number of imbeciles and idiots combined. It has been found that out of 100 mentally deficient persons there are 5 idiots, 20 imbeciles

⁷⁷Theiman, W. *National Herald*, April 22, 1962,

and 75 morons. Another important point is that mental deficiency is an inherent defect in the development of an individual. For example the idiot is the slowest in his development. The imbecile develops more rapidly than an idiot and the moron more slowly than an average person. Thus it is to be kept in view that mental deficiency is innate and cannot be separated from the general developmental pattern of a person.

Mental Retardation

We are aware of the confusion prevailing with regard to definitions of various types of mental handicaps. Keeping in view this ambiguity we shall now consider the nature and education of mentally retarded children. Let us again note the difference between mental deficiency and mental retardation. It has been pointed out that mental deficiency refers to such intellectual defect which is incurable. On the other hand mental retardation stands for such below normal intellectual functioning as is curable. In other words, a mentally retarded child may require temporary assistance in order to come over his mental retardation. We are already familiar with the definition of the retarded child whose present grade-placement is lower than the normal expected grade. Sometimes the term 'slow learning' is used for such academic disability as results from environmental and personal factors. As regards the I.Q. of mentally retarded children it is extremely difficult to set any limits in terms of I.Q. Therefore, we shall consider the problems pertaining to mentally retarded keeping in view the fact that mentally retarded are those, "whose mental and social handicaps are not so severe as to prevent their being educated within the confines of the regular school system".⁸

In order to avoid mistakes in the diagnosis of mental retardation certain techniques and tests are used. For example the group intelligence tests are given to a class of children to find out mentally retarded. There are also individual intelligence tests for this purpose. Since mentally retarded children are poor in adjustment certain adjustment tests are also used. As regards their achievement in school it has been found to be poor and therefore, certain achievement tests are often used. Thus in the diagnosis of mentally retarded children group intelligence tests, individual intelligence tests,

⁸ Magnifico, L. X. *Education for the Exceptional Child*, p. 125.

adjustment tests and achievement tests are used. In certain cases there is a provision for the case study approach and certain aspects of life are intensively examined. Thus all precaution is taken to discover the retarded in the class.

Efforts have been made to study the psychology of mental retardates. According to Ingram, "The mentally retarded child approaches nearer to the average child in sensory acuity and motor ability than in more definitely intellectual processes. The majority approximate success at their chronological-age level most nearly in processes which call for eye-hand co-ordination and for motor response."⁹ From the educational point of view it is significant to note that mentally retarded children are able to comprehend concrete objects rather than abstract ideas. Wallin has aptly stated that mental retardates are 'thing-minded', 'eye-minded' and 'ear-minded' rather than 'word-minded' or 'thought-minded'.

Another important feature of the psychology of mental retardates is that they are unable to relate easily any present experience with their past experiences. This creates a lot of difficulty in their thinking.

GIFTED CHILDREN

One of the most important categories of the exceptional children is that of the *gifted* children. Studies by Terman and Hollingworth have highlighted the importance of the gifted and his education. Terman and his colleagues published a book entitled *Mental and Physical Characteristics of One Thousand Gifted Children* in 1925. A year later Hollingworth published his book, *Gifted Children: Their Nature and Nurture*. Thus we see that about 1925 the attention of the psychologists was drawn towards the gifted children and their problems of education. In 1942 L. S. Hollingworth published another book on children above 180 I.Q. In this way studies of gifted children and individuals have contributed in a remarkable manner to modern educational psychology.

Characteristics of the Gifted

According to a definition the gifted child is an individual with special abilities, talents and traits. Prof. Terman has mentioned

⁹ Ingram, C. P. *Education of the Slow Learning Child*, 1953.

some of the characteristics of the gifted. According to him a gifted person has high intellectual traits, persistence of motive and effort, confidence in his abilities and great strength of character. Gifted children have been compared with the normal ones and it has been found that the gifted children surpass average children in their desire to know about a thing, in perseverance and determination, as well as in intellectual traits. The gifted child has a good sense of humour and has a high level of general intelligence. Thus various studies show that the gifted children are superior to average children in respect of physical, emotional, social and mental development. In a study by H. A. Carroll (1930) of '*Generalization of Bright and Dull Children*' it was found that bright children had superior ability to reason, to generalize and to synthesise. According to Gesell and his colleagues superior infants are emotionally sensitive to their environment and display intelligent behaviour. Parents of gifted children have reported certain characteristics such as quick understanding, insatiable curiosity, retentive memory, large vocabulary, unusual interest in numbers, relations, atlases and encyclopedias. Thus it is a well known fact that the gifted are superior to average children in all respects.

Interests of the Gifted

Studies of the interests of the gifted have shown that they are greatly interested in mathematics. A study by Cutts and Moseley¹⁰ confirms the belief that the gifted children are more interested in mathematics. Barbe (1955) found that the gifted learnt to read earlier than the average students. Carroll (1930) discovered that the gifted are superior in spelling. The study by Hollingworth of 31 children with an I.Q. of over 180 has shown that the gifted tend to read a great deal. Some studies have also shown that the gifted children possess special talents and their interest lies in almost all subjects.

Intelligence and Age

It would be worthwhile to consider the question whether there is a change in the intelligence of the gifted with advance in age. Generally most of the psychologists accept that the gifted individuals remain superior as they grow older. But recent researches have

¹⁰ Cutts & Moseley, "Bright Children and the Curriculum", *Ed. Adm. Sup.*, 1953.

shown that the I.Q. is not so constant as it has been believed to be. It is, therefore, natural to think that there is some change in the I.Q. of the gifted individuals. Terman and Oden (1947) have found that the I.Q. of very bright children tended to decrease with age. But they think that it may be due to unreliability of the tests used. Barbara S. Burks and others have noted that the I.Q. of girls decreases more than those of the boys. This may be perhaps due to sex differences and the pattern of maturation. Cattell has found evidence of increase in I.Q. with age and this finding has been supported by some other studies as well. It is said that the so-called increase in the I.Q. may be due to practice effect. All these studies pertaining to changes in I.Q. emphasize the fact that more than one test should be used in the identification of the gifted children. Longitudinal studies of the gifted will provide useful data for the proper assessment of mental development at different levels of age.

Adjustment of the Gifted

Sometimes it is said that due to their superior abilities the gifted children are unable to adjust socially. This is a wrong notion. Studies have shown that the gifted can adjust far better than an average socially adjusts. Like everyone else the gifted have problems of adjustment. Nonetheless they possess the ability to solve their problems. It is on account of this ability to understand and solve their problems of adjustment that the gifted are generally well adjusted. Since they understand various problems of adjustment, they have happy disposition and get along with others remarkably well. The intellectually gifted child is normally happier than the average child. So superior abilities not only help in intellectual pursuits but they are also useful in solving the problems of adjustment.

Education of the Gifted

Educational psychologists have emphasized the need for special attention towards the education of the gifted. According to Strang the gifted children need special help in reading. They must be guided properly in the choice of the reading material so that they develop desirable reading skills and attitudes. Hollingworth has pleaded for a special educational programme for the gifted particularly at the primary level. Since most of the schools are suited for the average children it is suggested that the co-operation between

parents and the teachers of the gifted is extremely important so that proper educational facilities may be provided to the gifted. Some studies have shown the need for more freedom in the choice of courses by the gifted children. This freedom enables a gifted child to study according to his typical needs. There are some methods which have been found useful in the education of the gifted. For example the practice of double promotion is helpful in the case of a gifted child. But on the whole the practice of double promotion is criticized by some educationists on the ground that when a double promotion is made from one class to the other certain subjects are left unlearned. In this way double promotion is not desirable. Then there may be difference in age of children of the higher class. So when a gifted child goes to a higher class he may not find himself in harmony with the grown-up boys. Some of these problems have come in the way of double promotion.

A more psychological and useful method in the education of the gifted is that of ability grouping. Students of average class are divided into 3 or 4 groups according to their educational needs and the teacher tries to pay special attention to these groups. Sometimes gifted children are given enriched plan of studies and the teacher encourages them to discuss problems with him. There should be a provision for acceleration because a moderate amount of acceleration results in better personal and social adjustment and scholarship. The effects of acceleration are not good in case of average students. It may be noted here that acceleration is "(1) the process of progressing through the school grades at a rate faster than that of the average child, either by skipping grades or by rapidly mastering the work of one grade and moving on to the next higher grade; (2) advancement in mental growth or achievement beyond the average for the individuals of chronological age; (3) a general term including all administrative practices which result in completing a school programme in less than the usual time allotted."¹² Besides acceleration enrichment of the educational programme has been found very useful in the education of the gifted. Excursions, films, libraries, radio programmes and all other informal agencies of education are very good means of enrichment. Gossard and Wolfson prefer enrichment to acceleration in the education of the gifted.

¹² Good, C. V. *Dictionary of Education*, 1959.

CHAPTER 8

INTELLIGENCE AND ITS TESTING

Definition of Intelligence

Generally speaking, people are pretty much the same everywhere in the world. They have the same biological and psychological make-up and they are very much alike. On the other hand, it is also true that no two individuals are exactly alike. There are individual differences, to which the modern psychology pays utmost attention. The study of intelligence has sustained itself to a large measure from the two closely related problems—individual differences in intelligence and the measurement of intelligence. Naturally in any study, the first important step is to define terms. In the case of intelligence, the same problem is faced and it is interesting to note that there are many definitions of intelligence. But whatever the definitions of intelligence may be, it is important to bear in mind that *intelligence* is not a thing but a concept, an abstraction. It is an intervening variable, hence difficult to be defined. Nonetheless definitions of intelligence have been offered and they fall into three main categories. In the first category of definition of intelligence emphasis is on the capacities that are necessary to do school work. The educational psychologists have been very enthusiastic supporters of this category of definitions of intelligence. They point out that children who are intelligent get good marks and they are able to go further in their education than those children who are less intelligent. In other words, educational psychologists generally define intelligence as scholastic aptitude. But this kind of definition is not accepted by all. Those who object to such a definition, point out that intelligence is also related to the kind of work an individual can do with success. Hence to define intelligence simply as scholastic aptitude is to narrow its scope. Whatever the emphasis in approach, it is clear that in this category of definition, reference is made to practical work or situation. The intelligent person will do better than the less intelligent one. Hence it may be said that this category of definitions refers to behaviour which may be expected to vary with intelligence. In other words, these definitions are “practical definitions”, and do not suggest what intelligence actually is.

The second category of definitions of intelligence, takes into consideration certain traits or capacities. Hence in this category, intelligence is defined as "the ability to use symbolic processes", "to reason", "to act purposefully", "to deal effectively with the environment", "to adjust to novel situations", or "to reorganize the environment". These definitions of intelligence are based on psychological processes and the capacities of individuals. Efforts have been made to analyse intelligence into its component parts and apply to statistical procedures of factor analysis. Thus this category of definitions of intelligence generally considers intelligence as an aggregation of traits and capacities.

In the third category of definitions, intelligence is whatever the intelligence tests test. Apparently such a definition is meaningless. But a little thought reveals that it is not so meaningless as it appears. This category of definitions of intelligence takes into account the measuring procedures in terms in which intelligence is assessed. In other words, this category of definitions is operational as against the practical of the first category and capacity definitions of the second category.

The Historical Background

The three categories of definitions described above are inter-related. They were discussed separately for purposes of clarification. A review of the historical background of intelligence testing will clearly reveal the interrelationships among these definitions.

The beginnings of intelligence testings can be seen in the great movement of humanitarianism that spread over England and Europe during the opening decades of the 19th century. This humanitarian movement led to the understanding and study of the problems of mental defectives. Psychologists found that there were gradations in intelligence of the feeble-minded. It was discovered that there were mental defectives who could not avoid even the elementary risks of life. Some of the mental defectives put their hands into fire. There were others who could avoid the common dangers of life but were unable to learn any useful task. There was another class of mental defectives which could learn simple useful work. Thus these gradations in intelligence of the feeble-minded individuals led to the possibility of gradations in intelligence of the normal people. But no serious effort was made to study intelligence in the normal individual till the close of the nineteenth century. It may be mentioned

here that shortly before 1900, Hermann Ebbinghaus (1850–1909), one of the most famous German experimental psychologists, propounded a theory that ‘intelligence was the ability to combine and integrate, and that it could be tested with sentences containing blanks which must be filled in to complete the sense.’ “The—— rises——the morning and——at night” is an example of the test sentence Ebbinghaus suggested. The test results supported his theory of intelligence. He gave tests to school children and found that good students did better than the poor ones.

However, the real credit as the originator is given to Alfred Binet (1857–1911) a French psychologist. Binet was approached by the municipal school authorities in the year 1904, to investigate the intelligence of school children and devise some means of measuring it. At the time, the municipal authorities in Paris were faced with the serious problem of inequalities in intelligence displayed by school children. They found that in the same class there were very intelligent children as well as very dull ones. It created a problem for the teacher. If the teacher taught keeping in mind the level of achievement of the very intelligent children, the dull ones could not learn anything. If he taught according to the needs of the very dull children, the intelligent students were bored. Thus a need for classification was felt and Alfred Binet was commissioned for this purpose as he had suggested in 1896 the creation of special classes for children of low intelligence.

The First “Scale” of Intelligence

In collaboration with Theophile Simon, Binet experimented with those children whose progress was average in school and determined tests involving attention, memory, discrimination and some other psychological processes, which could be performed by average individuals. Binet devised a scale which had thirty items, arranged in order of increasing difficulty. This scale¹ is also known as “The 1905 Binet-Simon Scale”. The items of the scale are:

- (1) Visual coordination—degree of coordination of movement of head and eyes as a lighted match is slowly moved before subject’s eyes.
- (2) Prehension provoked by tactual stimulus—a small cube of

¹In a “scale test” items are arranged in order of increasing difficulty.

wood is placed on back or palm of the subject's a hand to see if he grasps it and carried it to his mouth, and coordination of movements is to be noted.

(3) Prehension provoked visually—cube of wood is placed within subject's reach by examiner who notes whether subject grasps it.

(4) Recognition of food—a small piece of chocolate and a piece of wood of same dimensions are shown successively, and signs of recognition of food and efforts to take it are noted.

(5) Seeking food, when slight mechanical difficulty is interposed—a small piece of chocolate, wrapped in a piece of paper, is given to the subject, and his manner of separating the food from the paper is noted.

(6) Execution of simple directions and imitations of simple gestures.

(7) Verbal knowledge of objects—parts of the body (head, ear, nose, etc.) are indicated by the subject, and common objects (key, string, cup) are handed to examiner on request.

(8) Verbal knowledge of objects in a picture, as shown by pointing out objects, the names of which are given.

(9) Naming of objects designated in a picture.

(10) Comparison of lengths of two straight lines, pointing out the longer.

(11) Repeating three digits immediately after hearing the series once.

(12) Comparison of weights, identical-appearing blocks of wood weighing 3 and 12 grams, 6 and 15 grams, 3 and 15 grams.

(13) Suggestibility—asking the subject for an object that is not present (modification of 7); asking subject to point to a non-existent object in a picture, designated by a nonsensical word (modification of 8); comparison of lines of equal length (modification of 10).

(14) Definition of familiar objects: such as, house, horse, fork.

(15) Repetition of sentences, having fifteen words each, after hearing each one only once.

(16) Giving the differences between two common objects e.g., wood and glass, a fly and a butterfly.

(17) Immediate recall of pictures of familiar objects—pictures of thirteen common objects are shown for thirty seconds, after which the subject names as many as he can recall.

(18) Drawing from memory two different geometric designs which have been shown simultaneously for ten seconds.

(19) Repetition of series of digits, beginning with a series of three and proceeding until the subject's limit is reached.

(20) Giving resemblance between common objects, e.g., a wild poppy and blood; and ant, a fly, a butterfly, and a flea.

(21) Rapid comparison of lengths of lines: a line of 30 cm; then a line of 100 cm is compared with twelve others varying from 101 to 103 cm.

(22) Discriminating and arranging in order five weights—3, 6, 9, 12, 15 grams—all being of equal size.

(23) Recall of weights—one of the weights in test 22 is removed, the remaining weights are scrambled, and the subject is asked to identify the missing weight or gap in the series.

(24) Giving rhymes to selected words.

(25) Sentence completion—supplying the correct word to complete a sentence.

(26) Devising a sentence to include three given words, e.g., Paris, gutter, fortune.

(27) Comprehending and giving replies to twenty five problem questions graded in difficulty, e.g., What is the thing to do when you are sleepy? Why is it better to continue with perseverance what one has started than to abandon it and start something else?

(28) Reversing the hands of a clock, to be done from memory; e.g., giving the time it would be if the large and the small hands are interchanged at four minutes to three. The subjects who succeeded were given the more difficult problem of explaining why the precise transposition indicated is impossible.

(29) Drawing lines to show the folds and cut out a piece of paper that has been quartofolded and from which a triangular piece has been cut.

(30) Giving definitions and distinctions between paired abstract terms, e.g., sad and bored.

This scale was not set keeping various age groups separate. But Binet pointed out differentiating levels. For example, question number 6 was the upper limit for adult idiots; question 9 provided the upper limit for ordinary three-year-olds. For ordinary five-year-old children, question 14 was the upper limit. Question number 16 indicated the upper limit for imbeciles (adult), and number 23

was the probable limit for morons (adult). Question number 27 was considered very valuable for it helped in discovering the moron. Thus we see the first Binet-Simon Scale was helpful in the classification of idiots, imbeciles and morons in an objective manner. Another significant thing about the first scale is that it paid attention to the quality of judgement and reasoning shown by the subject in the course of the examination.

The 1908 Binet-Simon Scale

There were certain defects in the first scale. It did not have valid norms based upon a larger and more representative sampling of children at each age. Tests for each age within the limits of the scale were required to achieve finer units of measurement and greater accuracy. There were other aspects of the scale which needed revision. Hence a new form of scale was prepared and published in 1908. This scale is known as the '1908 Binet-Simon Scale'. In this scale, items are grouped at the appropriate age-levels from three to thirteen years.

Binet and Simon standardized the 1908 scale on the basis of individual examination of 203 school children between the ages of three and thirteen years. This number of 203 may seem small for purposes of standardization. But Binet and Simon devised a statistical procedure which has proved useful in later times and even today considerable use is made of their procedure. They also employed "the symmetrical bell shaped curve as a criterion, though without offering precise numerical values. They stated, simply, that the number of children testing above age (superior) should equal the number testing below age (inferior), and the number testing at age, or normal, should be greater than the number who rank as either superior or inferior."² With this scale was introduced also the concept of mental age. For example, a child who could pass all or all but one of the tests for, say, age 5 was given a basal mental age of 5. If he could pass five items of the scale at higher age levels he was granted another year of mental age. No credit was given for a fraction of a year. But later on in the 1911 revision, the fraction was also calculated.

A comparison of the 1905 and 1908 scales of Binet and Simon will indicate that in the former scale there were 30 items, but in the

² Freeman, F. S. *Theory and Practice of Psychological Testing*, 1950.

latter 59. The 1908 scale did not include the first six items of the 1905 scale which were for infants. Certain items of the 1905 scale were left out and many new ones were added in the 1908 scale. Another notable feature of the 1908 scale was the specific groups of tests for each age and a greater variety of mental processes was examined. As pointed out earlier, the 1908 scale made significant contributions to mental testing by its test items prepared after experimentation and their standardization. The concept of mental age, though formulated by Binet in 1905, was first used in the 1908 scale.

A sample of items included in 1908 scale is presented below:

- Age 3—(1) Points to nose, eyes, mouth.
(2) Repeat sentences of six syllables.
(3) Repeat two digits.
(4) Given family name.
- Age 6—(1) Knows right and left, indicated by showing right hand and left ear.
- Age 9—(1) Knows the date: of week, day of month, month of year.
- Age 13—(1) Draws the design made by cutting a triangular piece from the once-folded edge of a quarto-folded piece of paper.
(2) Rearrange in imagination the relationship of two reversed triangles and draws results.
(3) Gives differences between pair of abstract terms: pride and pretension.

The 1911 Revision of the Binet Scale

As is seen in the sample of 1908 scale given above, items at the lower age levels are too easy and very difficult at higher levels. This was the main criticism against the 1908 scale. In other words, standardization of the scale needed improvement. As the 1908 scale created great interest among psychologists of Europe and America, many suggestions as well as criticisms were offered. In the light of these suggestions and criticisms, the 1911 revision of the Binet scale was prepared and which included the following major changes.

“Four of the tests at the 11 year level were raised to the 12 year level; all 12 year tests were raised to the 15 year level; the three tests

of year 13, plus two new ones, constituted the new adult level. Here and there, also, a few tests were placed in either a higher or a lower age level. No tests were provided for the 11-, 13-, and 14- year levels. In addition to these changes, a fair number of tests found in the 1908 scale were omitted from the 1911 scale because they seemed to depend too much on school learning or on very incidental information."³ It may be noted here that the test items included in 1908 revision of the Binet scale for the age levels of 3, 4 and 5 remain the same in the 1911 revision. A sample of the items included in 1911 revision of the Binet scale is given below:

- Age 6—(1) Distinguishes between morning and afternoon.
 (2) Defines names of familiar objects in terms of use.
 (3) Copies a diamond.
 (4) Counts sous (coins),
 Distinguishes between pictures of ugly and pretty faces.
- Age 8—(1) Gives differences between two objects (from memory).
 (2) Counts backwards from 20 to 0.
 (3) States omissions from unfinished pictures.
 (4) Knows the date.
 (5) Repeats 5 digits.
- Age 10—(1) Arranges five blocks in order of weight.
 (2) Reproduces two geometric designs from memory.
 (3) Criticizes absurd statements.
 (4) Comprehends and answers difficult problem-questions.
 (5) Uses three given words in two sentences.

As regards the scoring of the 1911 Binet scale it was suggested that the fractions of a year could be used in determining the mental age. For example if a child could pass all the test items at age 6, two at age 7 and one at age 8 his mental age was considered to be 6.6 years by counting each test item equal to two-tenths of a year of mental ability. Thus in the example given the child concerned passed all tests meant for age 6, two meant for age 7 and one meant for age 8. The two items passed at age 7 are equal to four-tenths

³ *Ibid.*,

of a year and one item passed at age 8 is equal to two-tenths of a year. If we add all this, the total comes to 6.6 years. But this problem of mental age was solved satisfactorily by William Stern who suggested the concept of intelligence quotient. The concept of intelligence quotient helps to determine the degree of advanced or retarded intelligence.

The revisions of 1908 and 1911 created more interests among the psychologists of U.S.A. and they were able to improve Binet's scales further. Before we acquaint ourselves with the revisions made in America, it is appropriate for us at this stage to sum up the important contributions of Binet in the area of intelligence testing.

According to Freeman,⁴ following are the major contributions made by Binet:

(1) In the preparation of an intelligence test it is necessary for a psychologist to define intelligence and formulate a working conception. On this basis he should prepare the items of test experimentally. As the experiment proceeds the psychologist is able to formulate new hypotheses which further influence the test construction. In this manner the test construction goes on introducing improvements at the theoretical and practical levels. Binet demonstrated this by his own method of making an intelligence test. He determined the following characteristics of intelligence: ability to reason and judge well, to comprehend well, to take and maintain a definite direction of thought, to adapt thinking to the attainment of a desirable end and to be self critical.

(2) Intelligence must be measured by testing the higher mental processes and simple sensory and motor activities should be avoided.

(3) Binet's scales indicated that intelligence was a complex mental process and therefore, it was necessary to use different types of items in order to measure and devaluate the functioning of various mental abilities. For example, Binet's scales though apparently simple, actually it has complex mental activities like memory, free association, apperception, abilities with numbers, constructive imagination, comparison of concepts, etc.

(4) The test items included in an intelligence test must be in keeping with the environment of the testees.

⁴ Freeman, F. S. *Theory and Practice of Psychological Testing*, 1950

(5) In Binet's scales the tests were from easiest to most difficult and it was attempted that there should be a group of tests for a particular age level. Thus Binet introduced the idea that a test should be considered appropriate for an age level only when it was passed by three-fourths of that age group.

(6) The concept of mental age was introduced by Binet.

(7) The need for standardization of a test as well as its validity and reliability were emphasized.

The construction of the Binet's scales brought a revolution in psychological testing. His scales opened new vistas of educational, vocational and social nature where previously it was not possible to measure the psychological make-up of a man. In other words, psychological and educational measurements became very popular. Unfortunately Alfred Binet died in 1911. If he would have lived longer, it was expected that he would have made even more significant contributions in the area of psychological testing.

Intelligence Testing In America

Credit goes to H.H. Goddard, a psychologist at the Vineland Training School, New Jersey for introducing the Binet scales in America. In 1908 he published a translation of Binet's 1905 scale. Two years later in 1910 Goddard published a translation of Binet's 1908 scale. A year later he revised Binet scale of 1908 and adapted it for testing intelligence of American children. This adaptation of Binet's scale by Goddard became very popular in the U.S.A. and was widely used during the next few years till Terman produced another revision and published it in his book *The Measurement of Intelligence* in the year 1916. In order to prepare an American version of the Binet Scale Terman and his co-workers tested two thousand children in order to find out the normal performance of an average child at a given age. Terman chose six tests for each year from 3 to 10 inclusive and also for ages 12, 14, 16 and 18. For purposes of calculation he assigned two months mental-age-credit for each test passed. Terman included many of Binet's items in his revision as well as added some new items. Some items of Binet's scale were shifted to higher or lower levels according to Terman's findings on mental performances of normal children. This revision of Binet's scale by Terman was known as Stanford revision. After twenty years Terman revised his scale again. This time he

was associated by Maud A. Merrill. The 1937 revision of the Stanford-Binet Scale tested intelligence from the age of 2 to the age of adult. The test items pertaining to age levels below the age of 5 and the age levels above the age of 14 were very carefully standardized. Terman and Merrill provided test items at half year interval from the age of 2 to age of 5. They did so because during early years there is a very rapid mental growth. Full care was taken to establish the reliability and validity of the 1937 revision of the Stanford-Binet Scale. This 1937 scale has two equivalent forms known as L & M and each of them contains 129 test items as compared with the 90 items in the 1916 Stanford Binet Scale. There are certain characteristics of this 1937 scale. For example, it tests the nature of intelligence at the lowest age level of two by providing concrete objects in place of verbal items. For example, a child of 2 or 3 may be asked to recognize an object like a toy, a cup, a spoon, etc. At the upper age levels the 1937 scale measures intelligence with the help of verbal and abstract items. Tests of word meaning are included at a number of age levels. Memory is also tested by making the subject to listen to a section of a story and then asking him to write it out from memory. The 1937 scale uses the concept of I.Q. which is calculated thus: If the child to be tested is of 10 years age the tester may give him test items suitable for age 9. Suppose the child passes all the items meant for age level of 9, four items of age 10, three of age 11 and one of age 12 and none of age 13, to calculate the mental age (M.A.) of this child we add up as follows:

9 years equal to	108 months
4 items of 10 years level equal to	8 months
3 items of 11 years equal to	6 months
1 item of 12 years equal to	2 months
Total	124 months

In order to find out the I.Q. the mental age of 124 months should be divided by the chronological age of 120 months. Thus his I.Q. will be $124/120 \times 100$. In other words, the formula of the I.Q. is $M.A./C.A. \times 100$.

Performance Tests

The Binet type of intelligence tests are useful in case of those children and adults who are normal in their vision, hearing, comprehension, etc. In other words, children who are handicapped, i.e., dumb or deaf or even illiterate cannot be tested by the Binet scale. It was, therefore felt that an intelligence test should be devised in such a manner as was able to find out mental abilities of the illiterate as well as the handicapped persons. In 1850 Edouard Seguin of France devised an intelligence test for feeble-minded children. The items of this test were based upon certain types of performances such as fitting blocks of triangular, circular or some other shapes into corresponding cut-outs in a board. The child who was unable to follow the instructions of the test by means of language was instructed with the help of pantomime. In this way Seguin constructed the first performance test that was used for determining intelligence of feeble-minded children. Later on an American Dr. William Healy made a completion test which required the child to complete a scene of a farmyard. This farmyard scene had several square holes and the child attempted to place the proper piece in those holes to complete the scene.

After some years in 1917 Rudolf Pintner and Donald Paterson of America prepared a performance test which was a great improvement upon the tests prepared by Seguin and Healy. Pintner and Paterson constructed a performance scale which had a series of tests requiring motor responses and making verbal instruction unnecessary. The scoring of this scale was based upon the time taken by the subject and the errors made by him. This scale became very popular and has been widely used in testing the intelligence of the handicapped persons. But it has been felt that performance tests do not measure the same type of intelligence or mental activities as are measured by verbal tests.

Army Alpha and Beta Group Tests

During the World War I there was a great need for intelligent officers and men. In the U.S.A. the American Psychological Association appointed a committee of experts to prepare such an intelligence test which could be administered to a group of persons at a time. This committee was headed by R.M. Yerkes and its members were L. M. Terman, A. S. Otis, H. H. Goddard, F. L. Wells and some others. These experts devised such a test as was able to test

intelligence as far as possible without being affected by previous education and training. They made two tests. One was called Army Alpha for literate people and the other was Army Beta for illiterate persons. Later on during World War II Army Alpha and Army Beta group tests were replaced by the General Classification Test. This test includes three types of problems pertaining to arithmetic, vocabulary and block counting. Then there are certain supplementary tests which try to discover special aptitudes. These tests are not available for general use.

Criticism

Intelligence tests have been evaluated and criticised since Binet constructed his scale. The problems of standardization, reliability and validity have been in the fore-front. One of the questions that has engaged the minds of educators and psychologists is related to the high achievement of a student and the nature of his intelligence. The question is whether a student who scores high marks in school examination, has high intelligence or not. Another intriguing question is; what is the relationship of chronological age with mental ability. In other words, if a child is young in age, does he score low on account of being young. Then there are various types of intelligence tests and scales. Do they have a common agreement among themselves? In other words, if a subject is tested by a number of intelligence scales and tests, does he score equally on all scales and tests. These questions have been answered satisfactorily. It has been shown that children who are rated high by their teacher also score high on an intelligence test. Likewise answers have been found to other questions as well. There are some important points of criticism. One of them is that intelligence tests do not discover the innate abilities of a person. Differences in family background and education have also affected the scores of individuals. In other words, intelligence tests are not culture free. Another important point of criticism is related to various theories of intelligence. For example E. L. Thorndike, who has propounded the multifactor theory of intelligence objects to the assumption that there is something like general intelligence.

Lovell⁵ has given a very good summary of the criticisms of intelligence tests. The various points raised against intelligence

⁵ Lovell, K. *Educational Psychology and Children*, London, 1958.

tests are given below:

(1) The tests are not reliable tests of innate intelligence, in that the ability to work them is affected by education and environment generally.

(2) Intelligence tests are unfair because those who cannot think quickly are penalized.

(3) It is possible to give practice and coach for intelligence tests.

(4) Intelligence tests measure abilities other than general intelligence or 'g'.

(5) Performance in an intelligence test is dependent upon the emotional mood of the subject.

(6) There is a mistaken notion among some people concerning with an intelligence test supposed to measure and to belittle it when it fails to predict traits and abilities which were never indicated to.

(7) Some people have decried the use of intelligence tests on the ground that they do not accurately predict performance in school work, employment or other real life situations.

It may be noted that these criticisms are not accurate because in certain cases people have wrong assumptions and secondly some of the objections raised can be easily removed.

SOME THEORIES OF INTELLIGENCE

It will be desirable to consider a few theories of intelligence which have been helpful in the preparation of the various mental tests. These theories are based upon the different views in regard to the nature of intelligence. The process of factor analysis has been applied intensively to formulate some of the theories of intelligence. It is, therefore, desirable for us to acquaint ourselves with some of the important theories of intelligence briefly.

The Two-factor Theory

Spearman is the author of this theory and according to him all intellectual activities depend primarily upon a general factor of intelligence which is represented by the symbol G. In other words, there cannot be any mental activity without the G factor. This is one of the main assumptions of the two-factor theory of intelligence.

It should be noted that the G factor of intelligence is not found in the same proportion among all individuals. Variations occur in the G factor and it is the basis of individual differences. The idea of G factor which stands for the general mental energy is parallel to the idea of physical energy. In other words, the concept of G factor was derived so to say from the concept of physical energy as propounded by physicists.

As regards the correlation between two mental activities Spearman stated that the amount of correlation coefficient found in two mental activities depended upon the extent to which the G factor was operative in them. If the G factor was less than the correlation was also found to be less. That is why in certain tests of intelligence such mental activities are included as have a very high coefficient of correlation. Mental activities like word meaning, arithmetical reasoning, sentence completion, reasoning by analogy, perceiving relationship in geometric form etc., have significant degrees of correlation with one another.

Spearman and his colleagues explained the presence of correlation between certain types of mental activities on the basis of the G factor. But later on they found that there were certain 'group factors' present in some mental activities. Furthermore Spearman and his associates postulated the existence of special mental abilities and they termed them with 'S' factors. Thus the G and the S factors are the corner stones of the two-factor theory of intelligence. According to the two-factor theory of intelligence a good test should have such items as discover the G factor adequately. As regards the presence of S factors it is explained that there may be other factors besides the G factor. These factors are found in groups which include S factors also. Thus in this theory it is assumed that "all mental activities have in common some of the general factor; each mental activity might also be a member of a 'group'; and it has also its own specific factor."⁶

Spearman and his colleagues found by further studies that non-intellectual factors like volition, interests and persistence also influence a person's performance on an intelligence test. This is a complicated theory but has been very well worked out and employed in test of an intelligence. Any test of intelligence which is based upon the two-factor theory must have such items which tap

⁶ Freeman, F. S. *Theory and Practice of Psychological Testing*, 1953.

general factor adequately. In other words, the test has to be saturated with the materials relating to G factor so that the general abilities of a person are adequately measured and the influence of S factor is minimised.

The Multi-factor Theory

The multi-factor theory was propounded by Thorndike. According to him intelligence was a multitude of separate factors or elements. In other words, Thorndike conceives intelligence as a multitude of atoms of mental ability. That is why this theory is also called 'atomistic'. The main assumption of this theory is that a mental activity involves a number of atoms of mental energy which function together. Thus any mental act according to Thorndike is the result of a number of minute elements of intelligence acting as a whole.

As regards the correlation between different mental activities, it is assumed that the degree of correlation depends upon the number of common elements of intelligence found in them. For example if there is a high correlation between mental activities A and B in comparison to mental activities A and C, it indicates that in A and B there are more common elements than in A and C. It is, therefore clear from this standpoint that there is nothing like G factor which has been considered so important by Spearman.

Thorndike postulates the presence of certain types of mental activities on the basis of mental elements forming different groups. A mental activity like verbal meaning is the result of a group of mental elements which are of similar nature. These elements having common features form a group and thereby give expression to a particular type of mental activity. It is significant from the testing point of view that Thorndike thought of many elements of mental ability operating together. On this basis Thorndike constructed his test of mental abilities and it is known as CAVD test. This test has four parts. The first part is known as (C) which is concerned with sentence completion. The second part is that of arithmetical reasoning (A). The third part deals with vocabulary (V). The mental activities pertaining to following directions (D) constitute the fourth part of this test. It is assumed by Thorndike that this test tries to test almost all of the abstract intelligence, for very significant correlations are found in mental activities of these four parts. It may be, however, noted that Thorndike does not claim that this

test includes items pertaining to all aspects of intelligence. As a matter of fact no one test can.

The Group-factor Theory of Thurstone

There are some group-factor theories of intelligence but among them Thurstone's theory is most popular, for it has led to the construction of the famous *Chicago Tests of Primary Mental Abilities*. According to this theory there is a 'primary' factor operating in different mental activities of a common nature. Due to these mental activities having a common primary factor form a group. Likewise there may be another group of mental operations having a common primary factor. Thus it is assumed that there are a number of groups of mental abilities having their own primary factors. The function of the primary factor is to provide unity and cohesion to a group of mental activities. It has not been possible so far to determine the exact number of the group of mental abilities. But Thurstone and his colleagues have discovered six primary factors. These primary factors are relatively independent of one another and they are described below:

1. (N) The Number factor which indicates the ability to do numerical calculations correctly and quickly.
2. (V) The Verbal factor which involves verbal comprehension.
3. (S) The Space factor which deals with a task requiring manipulation of an object imaginably in space.
4. (W) The Word fluency factor deals with the ability to think of isolated words rapidly.
5. (R) The Reasoning factor dealing with tasks requiring a subject to find out a principle or a rule governing a series or a group of letters.
6. (M) The Rote memory factor involves the activity to memorize quickly.

Besides these six factors there are other two possible factors which have yet not been sufficiently established. These are (P) the perceptual factor and (D) the deductive factor.

It has been stated earlier that Thurstone assumed that primary factors were relatively independent. Due to this independence there cannot be any correlation between different primary factors of mental abilities. Nonetheless studies have shown that there were significant

and positive correlations between these six primary factors. The possible reason for the presence of correlation between these primary factors may be that there is some kind of lack in the test itself which does not permit to discover the primary factors in their pure forms. The following table indicates the degree of correlation found in the six primary factors:

	N	W	V	S	M	R
N	—					
W	.41	—				
V	.40	.54	—			
S	.28	.17	.16	—		
M	.31	.36	.35	.13	—	
R	.53	.49	.59	.29	.39	—

It ought to be remembered that there is no final number of primary factors. Thus no finality about the primary mental abilities is claimed. As regards the application of this theory to a testing of intelligence we have already noted that the Chicago Tests of Primary Mental Abilities has been found useful for it gives six percentile rank for each person. In this manner it is possible to get a clearer picture of a person's mental abilities. This theory has also helped in providing such a conceptual framework as is useful in making tests of mental abilities dealing with definite categories of mental activities. While evaluating this theory it has to be borne in mind that assumes intelligence to be name for certain kinds of mental activities. In other words, intelligence is indicated through intelligent behaviour. Since intelligent behaviour can be learnt and developed in a culture the importance of education is emphasized. In all cultures certain types of mental activities are required. For example in our culture there is a great emphasis on three R's. That is why in our educational system reading, writing and arithmetic occupy very important place.

CHAPTER 9

MOTIVATION

'Springs of Action'

Why do we behave as we do? What are the "springs of action"? There are various reasons for why do we behave as we do. In the past, more particularly before the World War I, instincts were considered as the springs of action. An historical approach to the problem will indicate that though Rene Descartes (1596-1650) spoke of man's *rational* behaviour as against animals' *instinctive* behaviour, the works by Darwin established close relation between man and animal. This led to the study of instincts in man. Philosophers and psychologists devoted their full attention to the study of instincts and tried to prepare a comprehensive list. Numerous types of instincts were supposed to exist in man. William James noted in man instincts like sucking, crying, locomotion, curiosity, sociability, shyness, cleanliness, pressing downward on the feet, imitation, pugnacity, sympathy, fear of dark places, acquisitiveness, love and jealousy. He defined an instinct as "the faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance".¹ Further, James considered every instinct as an impulse, and believed that they could be modified by habit.

Instinct Theory of Behaviour

The British psychologist, William McDougall (1871-1938) supported the instinct theory of behaviour. According to him, all behaviour was an expression of innate tendencies. He prepared a list of major and minor instincts. We have already acquainted ourselves with his list of fourteen instincts in our consideration of "Emotional Development". But it is to be noted here, that McDougall's views on instincts as "springs of behaviour" found favour with many psychologists and students of human behaviour. Edward L. Thorndike made more comprehensive study of instincts and disagreed with McDougall in regard to the emotional content of

¹ James, William, *Psychology* (Briefer Course), 1892.

instincts. He emphasized the "unlearned" quality of instincts. By the close of the nineteenth century and the beginning of the twentieth century, the term "instinct" became a common word. Economists, sociologists and others used the term "instinct" in various connections. "The Instinct of Workmanship", "Instincts of the Herd in Peace and War", "Instincts in Industry" became the titles of books by some of the social scientists. Even the famous psychoanalyst Sigmund Freud propounded two fundamental instincts in man. They are *Eros* and the *Destructive* instinct.

There was a flood in the varieties of instinct. This led Luther L. Bernard in 1924 to survey the works of about 400 authors. He found that instinct theories were carried to ridiculous extremes and that there were almost six thousand activities or urges to which the terms "instinct" or "instinctive" were applied. This state of affairs prompted certain psychologists to examine the nature of instincts. These psychologists did not believe that activities described as instinctive are innate. Prominent among the critics of the concept of instinct were Knight Dunlop and John B. Watson. They stated that human behaviour is affected by learning. Fear, which was considered to be innate, was demonstrated by Watson to be acquired. Psychologists began to realize that the term "instinct" expressed two aspects of behaviour. One was the type of behaviour and the other was the urge behind a behaviour. Thus "instinct" was used for type of behaviour such as fighting, and for urges like hunger, sex and others.

In order to get rid of this misused concept of instinct, Robert S. Woodworth suggested the term "mechanism" for activity or type of behaviour, and "drive" for urges. It is, however, true that mechanism and drive cannot be sharply differentiated. A mechanism has the power to provide its own drive during its functioning. For example, an individual induced to learn painting will, if he has love for painting, be so much absorbed in it that it becomes a drive by itself. Thus eminent psychologists like Dunlop, Watson and Woodworth demolished the doctrine of instincts. Anthropological findings gave a finishing touch to this job and today the term "instinct" lies condemned.

Physiological: Aspect Drive

As mentioned above, R.S. Woodworth suggested the term "drive" for urges. It was adopted by animal psychologists. In the beginning,

"drive" meant the energy that sets things going. But later on, its meaning was expanded and 'drive' stood for "energy or action arising from psychological needs like hunger, thirst, sex, fatigue, elimination of bodily wastes, maintenance of constant temperature and barometric pressures." Studies by physiologists like Walter B. Cannon led to the conclusion that drives have a tissue-need basis, that is, the lack of some substance creates a condition in some tissue or tissues of the body which persistently stimulates the organism until the condition is relieved. *Bodily changes in Pain, Hunger, Fear, and Rage* by Cannon throws good light on the physiological aspect of drives. Studies by a Japanese psychologist Tomi Wada indicated that when a person is moderately hungry, there is an increase in general muscular activity and mental alertness. Findings of a Chinese physiologist and psychologist Ging Hsi Wang showed that the sexual cycle greatly affects a rat's energy. This study by Wang was devoted to the effect of sex on the activity of the female white rat. Wang noted each day the rat's runs in a revolving squirrel cage. He observed that every fourth day when the oestrous period came, it made almost twice as many runs as normally. No such activity was shown during pregnancy or lactation. In other words, sexual cycle functioned as a drive for an increased activity.

Another study of rats by Curt P. Richter demonstrated that glands affected drive. Richter found that the rats whose adrenal, pituitary, or thyroid glands were removed, showed loss of activity. Lucein H. Warner studied the effect of thirst on rats and found that thirst reduced the hunger drive. Study by Fred A. Moss indicated that hunger weakened the sex drive. Walter R. Miles found that several young men who reduced their diet experienced a considerable decrease in their sex urge and sexual interest during the period of reduced diet. All these studies show interrelations between the drives.

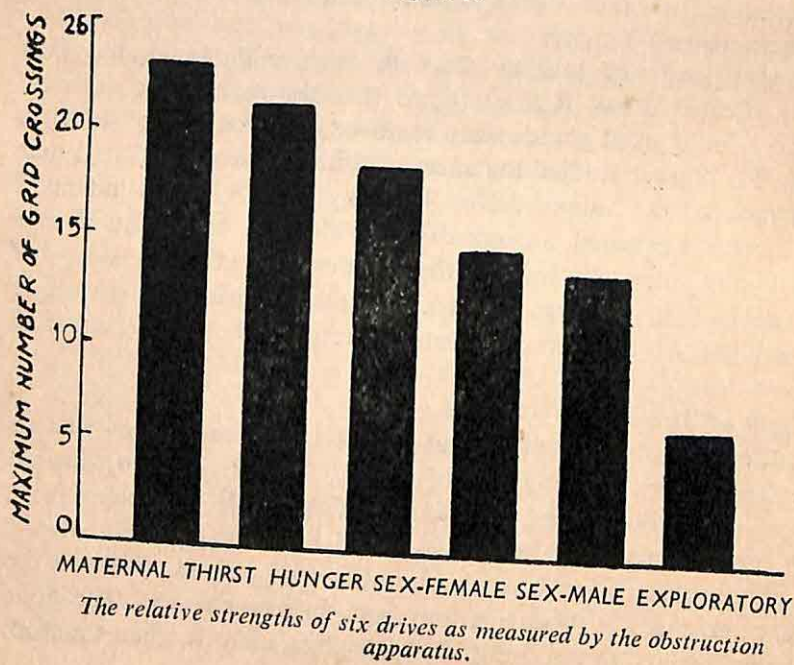
Strength of Drive

Besides the study of the above aspects of drives, there was an effort to discover the strength of drives. Carl G. Warden, devised an obstruction box to test the strength of drives. In this experiment, a rat motivated say by hunger is placed in a compartment at one end of the obstruction box. At the other end is food. Between the hungry rat and the food is a long and narrow passage. The floor of the passage is an electric grid which gives a shock when touched.

The stronger the hunger drive of the rat, the more shock it bears to reach the food. Thus the strength of the drive is determined. With the help of this obstruction box, strength of other drives could also be determined. The most famous experiment of Prof. Warden is that in which he compared the relative strength of five major drives in the white rats. In this experiment, a rat motivated by thirst or some other drive was allowed to cross the grid and sip water or avail the incentive. Then the rat was put back in the first end of the compartment. This was done each time, it crossed the grid. The strength of the drive was determined by the number of times the rat crossed the grid in twenty minutes. Using many rats with five drives at their maximum, Warden found the following results:

Drive	Incentive	Number of crossings in 20 minutes
Maternal	Litter of Young	22.4
Thirst	Water	20.4
Hunger	Food	18.2
Sex	Rat of other sex	13.8
Exploratory	New location	6.0

Figure 16



It may be noted in the above table, that maternal, thirst and hunger drives do not differ materially in their strength, but they are significantly stronger than the sex and exploratory drives. Whether the same is true or not in case of humans, will be an interesting finding, specially in reference to the amount of emphasis laid by the Freudians on sex drive. But it is difficult to study humans for finding out the relative strength of their drives. Animals are best suited for this purpose on account of the following:

- (1) No cultural influences are interwoven with the physiological drives as they are in man.
- (2) Life history of animals can be controlled which is not possible in the case of man.
- (3) Animals can be subjected to experimental controls which is not possible with man.
- (4) As many animals can be subjected to controlled conditions as are required for reliable comparison of the different drives.

We may refer here to the following remarks of Professor R.S. Woodworth :

In short, the power of acquiring new mechanisms by the human mind is at the same time a power of acquiring new drives, for every mechanism, when at that stage of its development when it has reached a degree of effectiveness without having yet become entirely automatic, is itself a drive capable of motivating activities that lie beyond its immediate scope. The primal forces of hunger, fear, sex, and the rest continue in force, but do not by any means, even with their combinations, account for the sum total of drives actuating the experienced individual.²

Drive and Motive

L.F. Shaffer has³ defined *drive* as a "stimulus, usually internal, that arouses persistent mass activity", and a *mechanism* as "an acquired response tending to the reduction of a drive". On the basis of these definitions Shaffer points out that many drives

² Woodworth, R. S. *Dynamic Psychology*, 1918.

³ Shaffer, L. F. *The Psychology of Adjustment*, 1936.

may be innate, and *all* mechanisms the results of the learning processes. But as we have seen, Woodworth has a slightly different view, for according to them every mechanism has the power to become a drive. In other words, Woodworth states that drives can be acquired also. That is why, some psychologists suggest that there are primary drives and secondary drives. Primary drives are native and secondary drives are acquired. But the concept of drive is not so expressive as Shaffer would want it to be. According to him, the concept of drive is useful only in terms of the *source of activity*. It does not indicate the direction of activity. Therefore, he suggests the concept of *motive* which is defined by him as "that which arouses, sustains and directs activity". Thus the two main aspects of motivation: sources of activity and direction of activity of the individual are very well taken care of by the above definition. Further, the concept of motive includes both drive and mechanism. According to Shaffer, "motives are drives which have been modified by ordinary process of learning. In other words, primary drives when extended in range or modified by learning processes become motives. Thus by means of learning processes, drives are elaborated into motives. The concept of motive is basic to motivation. It includes all aspects of drive and mechanism as well as the sources and direction of human activity. That is why *motive* is preferred to *drive*.

Unlearned Motive

Woodworth suggests the term "unlearned motive" for such activities which are characterised by *universality, presence from birth, and permanent trend of a changing activity*. The universality of an unlearned motive like hunger or sex has to be accepted with care for there will be found cultural differences in the strength of a drive. Individual differences also emphasize this point. Another caution to be taken is that "when we wish to make sure of the universality of any drive throughout the human species, we must not rest content with a sample of our own group; we must, with the anthropologists, extend our survey to cultures very different from our own". The second characteristic of 'unlearned motive' is *presence from birth*. A behaviour like breathing is not learned, but it is present right from birth. But there are other varieties of unlearned motives which appear with maternity.

According to Woodworth, this criterion is a negative one for behaviour that appears as late as puberty may depend on maturation as well as learning. The third criterion of *permanent trend in a changing* activity for an unlearned motive can be seen in the example of eating behaviour. The eating behaviour of a child is modified as he grows in age and experience. But the basic trend remains the same. Thus there is an element of permanence in a changing activity like eating or drinking. On the basis of these three criteria it may be possible to recognize unlearned motives. But so far, we do not know the actual number of unlearned motives. We need detailed genetic study of motives for this purpose. Another difficulty is that unlearned and learned aspects of a motive are so mixed up that it is almost impossible to separate them. As Shaffer points out, the most significant trend in the development of a motive is 'the conditioning of external stimuli to operate in place of internal ones'. But this does not mean that the internal stimuli is no more important. The hunger or thirst is felt first within the organism, and then the outer stimuli acquired by means of learning help in making the right and definite move for the satisfaction of hunger or thirst.

Categories of Motives

Shaffer suggests certain categories of motives. *Subsistence motives* are based on the organic need drives such as hunger and thirst. Human efforts devoted to food production, and production of such things which satisfy the basic needs of life, are made on a large scale. Economic activities in a society are expressive of these efforts made for the satisfaction of organic need drives. The second category of motives are those which are derived chiefly from emotional tensions. According to Shaffer emotional motives are "developed by the learning of mechanisms or habits of response. The earliest learned differentiation is between struggling and avoidance responses, spoken of as rage and fear respectively. From the trend of development which begins with infantile rage come the motives which may be termed mastery or self-assertion. From fear come certain aspects of motives to submit and to conform".⁴ Besides these motives, the motive to seek

⁴ Shaffer, L. F. Op. cit., p. 102.

approval and attention which we observe in adults, is a modified form of love response of childhood.

Mastery Motives

These motives are the socially approved forms of struggling responses or rage. How does it take place is an interesting problem for study. Generally speaking, parents condition the struggling responses of the child. The verbal and other symbolic responses replace the direct expression of rage. As the child grows in age and experience he is able to acquire the ability to face restrictions imposed on him by his social milieu in a sophisticated manner. In order to overcome these restrictions, he learns new techniques of adjustment, and develops mastery motives. He wants to conquer his difficulties by mastering. This is illustrated by the example of a child who wants to open a tin of sweets. The small child may be easily frustrated in his efforts to open the tin case of sweets and react to it by throwing it away on the ground or dash it against a stone wall so much so that it breaks and the sweets are scattered on the ground. On the other hand, a grown up individual will not do so. He will not be easily frustrated like the child in opening the tin case. If he feels difficulty, he may look for a tool to open the tin. In other words, the grown up man will not express the rage like a child, but he will try to master the situation by thinking out a solution of the problem. This is the general pattern which may be observed in the development of mastery motives. "The permanence, strength and universality of the mastery type of behaviour, then, are due to the fact that it is a form of modified and conditioned emotional reaction. Stimuli which arouse mastery behaviour are substitutes for or symbols of over-stimulation in the form of restraint, and the behaviour in response to such stimuli is a modified form of the struggling movements which restraint calls forth earlier in life."⁵

Social Approval Motives

There are the modified forms of adient drives, specially of those drives which are related to organic needs. These motives also include the love reaction which is the modification of the responses to mild skin stimulation. Thus the love reaction has a physical

⁵ *Ibid.*, p. 103,

basis of mild skin stimulation which may later on lose its organic basis on the social approval level. Human urges and drives to seek attention and sympathy are expressive of the need for love in a socially approved manner. In other words, social approval motives are directed to the satisfaction of urges for social approval and recognition which are a part of the need for receiving love and giving love. The desire for attention, sympathy and social significance are all varied aspects of social approval motives. It is for social approval that individuals risk their lives in performing certain difficult tasks. But in the beginning, the social approval motives have adient drives as their basis. We may observe almost the same process of development in social approval motives as we find in the case of mastery motives. But it has to be noted that a person who has enjoyed social approval, begins to seek it when it is denied to him. In other words, the social approval motives, become a part of his adjustment. He is easily upset when he is denied social approval. That is again not true for all cultures. Every culture has its own methods for satisfying social approval motives. That is, there is a cultural demand to conform to the moves and customs of one's social group. This demand itself gives rise to what Shaffer calls *conformity motives*. These motives represent tendencies in the individual to conform to the fashions of his social group so that he receives approval and avoids blame. According to Shaffer, conformity motives, probably develop from the fear reactions of childhood. These fear reactions are created by painful punishments, which are accompanied by blame or criticism. Thus a kind of conditioning occurs. Blame or criticism make individuals experience painful punishment. That is why individuals will like to avoid it by doing what is expected of them. In other words, conformity motives are developed. It is, however, to be noticed here, that the development of conformity motives by the fear of painful punishment is not desirable. Positive methods based on social approval motives are more desirable in this respect.

Other Motives

There are other motives and it is rather difficult to classify and list them. The reason is that most of the time a man may be motivated by a combination of motives. For example, if we want to find out the motive for work, we shall observe that it is not only for

satisfying the organic needs that man works, but there are also social motives of approval, mastery, conformity and others which make him to work. In other words, men are motivated by a combination of interacting motives. But it is possible to name mixed motives on the basis of their dominant theme. And thus there are other aspects of motives which are also important. In one aspect, man is mainly a creature of habit. He learns to do things, forms habits and thus by the force of habit, he does those things. That is why, Shaffer, Munn and some other psychologists consider learned or secondary or social motives as habits. Shaffer says, "These habits are obviously motivated behaviour. Activity is aroused and sustained until the stimulus is removed. The parallel between the behaviour of the man seeking his newspaper and that of a hungry dog who runs and digs and noses hither and thither until food puts an end to the drive, is very complete and exact. Habits, apparently, operate as motives".⁶ Further, habits which start as mechanisms acquire their own drives so much so that become autonomous. In other words, habits acquire *functional autonomy*, a term coined by G.W. Allport. It is illustrated by this example, "Just as a child gradually repudiates his dependence on his parents, develops a will of his own, and becomes self-active and self-determining, and outlives his parents, so it is with motives".⁷ Besides this, there is the consideration of force of habit. Not only the habit may become self-sustaining, but also acquires a force which helps in its persistence. The social significance of this persistence of habits, is well emphasized by William James. According to him, "Habit is the enormous fly-wheel of society, its most precious conservative agent". In other words, force of habit sustains conservatism and resists social change to a great extent.

Motives as Sentiments

Another aspect of motivation is observed in the formation of sentiments. According to McDougall, a sentiment is "an organised system of emotional tendencies concerning an object or class of objects". Individuals develop system of emotional tendencies towards what they do. In other words, motives are mixed with

⁶ *Ibid.*, p. 107.

⁷ Allport, G. W. *Personality*, 1937.

emotions to such an extent that it is impossible to observe them distinctly. As the secondary motives are learned, so are the sentiments. Thus sentiments are learned and they gradually develop according to the experiences of the individuals. They function as the strongest motivating influences in the life of an individual. They are the basis of our moral life. That is why McDougall emphasis the right growth of sentiments. According to him, "The growth of the sentiments is of the utmost importance for the character and conduct of individuals and of societies; it is the organisation of the affective and conative life. In the absence of sentiments our emotional life would be a mere chaos, without order, consistency or continuity of any kind; and all our social relations and conduct, being based on the emotions and their impulses, would be correspondingly chaotic, unpredictable and unstable. It is only through the systematic organisation of the emotional dispositions in sentiments that the volitional control of the immediate promptings of the emotions is rendered possible. Again, our judgements of value and of merit are rooted in our sentiments; and our moral principles have the same source, for they are formed by our judgements of moral value.⁸

Motives as Purposes

The concept of purpose is a part of motivation, for "a purpose is the symbolic representation of a motive", as Shaffer suggests. According to Woodworth, "A purpose can be defined as a goal-set with foresight of the results to be obtained. It is an idea of certain desirable or undesirable results motivating activity directed toward obtaining or avoiding those results."⁹ He further clarifies this concept by pointing that one can have an idea of a desirable thing without acting on this idea. Thus it is a simple wish. But, when the individual makes up his mind to get the desirable thing, he has a purpose. It is the purpose which leads to action. "In several respects, then a purpose is a motive at the highest degree of development. It can be more elaborate than any other motive, it is often adjusted to the exact character of a certain environment, it may compass a long series of varied acts leading up to the goal, and it is apt to have very great motivating power".¹⁰ Thus a purpose

⁸ McDougall, W. *Social Psychology*, 1936.

⁹ Op. cit., p. 391.

¹⁰ *Ibid.*

is of great significance in understanding motivational responses of an individual. If a person is able to formulate his purposes proper, he can acquire the ability to work till the time they are realized. In other words, the individual is able to forego the immediate satisfaction and reward, in the interest of his distant purposes or goals. This ability to keep the mind on the distant purposes to be realized and not to be swayed by the immediate satisfaction, is indicative of maturity and adjustment.

Motives as Attitudes

Attitudes are learned in a social milieu. They represent a set or readiness to act. Hence attitudes are also a part of motivation. If we examine the definition of attitudes as given by Woodworth, we shall observe that there are several aspects of an attitude. First of all, an attitude has a *set* or *disposition*. In the active stage, an attitude follows a general set, which is 'a selective factor, favouring or facilitating some responses, while preventing or *inhibiting* others'. According to Trow,¹¹ a set is "a preparatory attitude or state of readiness induced by a rather specific stimulus, for making a certain type of response to a situation expected to occur". In its active stage, an attitude is observed as a *disposition* or tendency. These two aspects viz., set and disposition of an attitude are illustrated in this statement: "...we may say that a person has a critical attitude or disposition towards politics. He is disposed to take an active critical attitude or set whenever the subject of politics is mentioned".¹² Another characteristic of an attitude is that it involves action towards an object. This action may be covert or overt. Thus the definition of an attitude as given by Woodworth is very comprehensive, in terms of action. Finally Woodworth lays emphasis on the *characteristics of the object* and the *acquaintance with the other*. A knowledge of the nature of the object towards which action is to be directed help in forming the right attitude. In the light of the above, we may understand Woodworth's definition of an attitude which runs as follows: "An attitude is a set or disposition (readiness, inclination, tendency) to act towards an object according to its characteristics so far as we are acquainted with them". It is defined by Trow as "a state of

¹¹ Trow, W. C. *Educational Psychology*, 1950.

¹² Woodworth, R.S. Op. cit., p. 387.

readiness, either mental or emotional or both for some kind of action when the appropriate situation is present". In other words, attitudes are expressive of emotionally or mentally or both toned states of readiness to act in a covert or overt manner.

Development of Attitudes

A study of attitudes in relation to motivation, naturally leads to the consideration of factors influencing the development of attitudes. We have observed in the beginning that attitudes are learned. But this learning is affected by developmental processes and maturation. The attitudes of a small child are different from that of an adolescent on account of differences in their development specially in terms of maturation. Due to differences in maturation of sex as well as sex differences, we may observe differences in the development of attitudes. A study of "Outsiders" by Northway¹³ revealed that physical factors also influenced attitudes. In this study, 80 children in grades five and six were ranked for social popularity by sociometric methods. It was found that the least popular children had the following characteristics: "...listless, lack of vitality, usually under par physically, either below normal in intelligence, or ineffective in the use of the ability they have; careless in appearance, case of possessions, work habits; lack interest in people, activity or events of the outside world. They seem to exist rather than live".

Thus it is evident that low vitality leads to poor social adjustment and poor social adjustment affects development of attitudes. That attitudes are influenced by home, was demonstrated in a study of Newcomb and Svehla. They compared attitudes of parents and children towards the church, towards the war and toward communism. The results indicated highest correlation between the parents, the next between parents and children and the lowest between siblings. The lowest correlations between siblings indicates the importance of outside social influences. This further suggests that though home is an important factor in the development of attitudes, there are other secondary groups represented by clubs, organizations, etc. which also influence attitudes. The influence of a school is also important in this respect. The attitudes expressed by senior students and teachers on certain important issues

¹³ Northway, M. L., "Outsiders", *Sociometry*, 1944,7,10-25.

influenced the development of attitudes of new students. Thus in a variety of ways attitudes are influenced as they are learned at various stages of life. These attitudes operate as motives in situations which demand action from the individual. By way of summary, it may be said that attitudes are "products of the interaction of the individual with his environment. Chiefly they are of cultural determination, but unusual family or social situations and unusual dispositions within the individual may profoundly alter the attitude pattern which would be expected if only cultural factors were operating".¹⁴

Motives as Interests

It is possible to observe interests functioning as motives. Without interest one may not like to do a thing. But under pressure or compulsion one may do a thing even though he or she is not interested in it. The teacher has to create interest in the lesson he is teaching. Without interest pupils are not motivated to learn. Therefore it is desirable to understand the nature of interest. According to Trow, interest is a kind of "mental excitation or preoccupation with certain classes of objects or situation". The interest of a person is seen when he thinks, feels or acts in a situation. The responses leading to satisfaction are indicative of the interest which an individual has. Woodworth considers an interest as a kind of positive approaching attitude which makes attention to a thing easy. Posing the question, how does an interest develop, he points out that interests spring from an individual's ability to deal effectively with some phase of the environment. As an example, Woodworth suggests that an interest in tools springs from the individual's ability to manipulate them and achieve desired results. Likewise an interest in music may develop due to one's liking for rhythm and harmony. And the most significant thing about interests is that they develop from 'the individual's active give-and-take relations with the environment'. Such active and positive interests function as strong motives. If we study the conditions conducive to growth of interests, we find that basic inherited nature of the organism is one of the three important conditions, for it is actively related to 'original satisfiers'. The second condition is reward of experiences connected with certain activities and not with

¹⁴ Stagner R. *Psychology of Personality*, 1948.

others. The third condition from which interests develop is that of need. The need governs the interest. The need for food creates interest in food. Thus basic inherited nature of the organism, rewarded experiences and needs, create conditions for the growth of interests which in their active form function as motives.

Unconscious Motives

Individuals are not aware of their motives all the time. Why do they do certain things without being aware of them, has been described by Freud and his followers. Psychoanalysts believe it is the *id* containing unconscious instinctual drives which is responsible for unconscious motivation. Due to unconscious motives, we are seldom aware of the sources of our attitudes, interests and other aspects of motivation. An individual who is fond of music may have had pleasant musical experiences in his childhood. Likewise our dislikes for certain things in adult life may be associated with our painful experiences during childhood. Munn¹⁵ reports the case of a psychologist who disliked a person. This case provides good illustration of unconscious motivation:

"I met a man named Snyder, and for some peculiar reason felt constantly suspicious of him. . . . I could find no definite reason for disliking him, until one day it occurred to me that a number of years previously I had read a story in which a person named Snyder was a thorough-going villain. Having thought of this explanation, all my ill feeling departed and the real Mr. Snyder became a very good friend of mine."

Freud on Motivation

According to Freud, there is motivation in dreaming, for the dream is the fulfilment of a wish. Freud states, "It is easy to show that the character of wish-fulfilment in dreams is often undisguised and recognizable. . . . There is, for example, a dream which I can cause as often as I like, as it were experimentally. If in the evening I eat anchovies, olives, or other strongly salted foods, I become thirsty at night, whereupon I waken. The awakening, however, is preceded by a dream, which each time has the same content, namely, that I am drinking. . . . The dream substitutes itself for action, as elsewhere in life. Unfortunately the need of water for quenching

¹⁵ Munn, N. L. *Psychology*, 1956.

thirst cannot be satisfied with a dream, but the intention is the same."¹⁶ Motivation in dreaming may have four possibilities. Firstly, a dream may be the fulfilment of a wish. Secondly, a dream may turn out to be a realized apprehension. Thirdly, a dream may have a reflection as to its contents. Finally, a dream may simply reproduce a reminiscence. Freud quotes a proverb which raises the question: "What does the goose dream of?" the answer being: "Of maize." Freud says, "The whole theory that the dream is the fulfilment of a wish is contained in these sentences."

Working of unconscious motives may be seen in forgetting also. According to Freud, forgetting is often more than a simple loss of memory. There is motivated forgetting. In the book *The Psychopathology of Everyday Life*, Freud discusses this problem of motivated forgetting. He observes, "There is no doubt that there are cases of name-forgetting that proceed in a much simpler way. We shall represent this state of affairs carefully enough if we assert that *besides the simple forgetting of proper names there is another forgetting* which is motivated by repression."¹⁷ Thus unconscious motives are expressed in dreaming, forgetting, slips of tongue and many other aspects of every day life.

¹⁶ Freud, S. *The Interpretation of Dreams*, 1913.

¹⁷ Freud, S. *The Psychopathology at Every day Life*, 1916.

CHAPTER 10

REMEMBERING AND FORGETTING

Remembering and forgetting are related to learning. If we examine the stages of learning, we find that they are three in number: (1) acquiring, in which the individual masters a new behaviour or activity like memorizing of a poem, or swimming, (2) retaining the new knowledge for a period of time; and (3) remembering, so as to reproduce the learned material. It is in the third stage of learning that remembering is required. It is mostly expressed in forms of recalling and recognizing. When an individual fails to recall or recognize a memorized material or some other previous experience, it indicates his forgetting.

Remembering and forgetting are a part and parcel of memory. There are psychologists who consider learning, retention, recall and recognition as sub-topics of memory. It has been pointed out by Woodworth and Marquis that "memory consists in *learning, retaining and remembering* what has been previously learned. . . . Retention is inactive, remembering is active, and both are included under the general head of memory. And there are several ways of remembering, the two principal ones being *recalling and recognizing*."¹

Historical Background

Memory has been discussed in the past by many philosophers. They have referred to it in connection with association of ideas. Plato, for example, pointed out association by contiguity. If we see a musical instrument, it may bring to our mind a musician because of their association. Aristotle held the view that recall takes place by means of suggestion. One thing leads to recall of the other because the two have been contiguous, or similar to or opposite from each other. It is almost the same phenomenon referred to by Herbart when he suggested that association and memory are influenced by the sum total of the past experience or "apperception mass" of an individual. Contributions of Thomas Brown (1778-1820) the Scottish philosopher—psychologist, have

thrown enough light on memory and helped in the understanding of learning and memory by elaborating several laws of mental association. According to Brown, we associate and remember something in terms of the relative duration, liveliness, frequency and recency of original experiences. He pointed out that association and remembering is affected by abnormal conditions like intoxication. James Mill (1773-1836), the British historian, economist and psychologist simplified the laws of association by pointing out that contiguity in experience is the only law of association and that "memory in the form of recognition is an idea or image of an object plus awareness of our earlier experience with it".² Ewald Hering (1834-1918), the German physiologist, emphasized the physical and neurological basis of memory, and suggested that a perception creates a certain neural path in the brain. If this perception occurs again, it follows the same neural path and thus brings about the same experience of memory. William James (1842-1910) was of the view that every person has a certain power of retentiveness and that its quality depends on his brain structure. Thus he agreed with Ewald Hering, and pointed out that learning one thing did not help learning another thing due to difference in neural paths. On the basis of his experiments on transfer of training, James concluded that retentiveness can be improved by training. In the light of the above, it will be meaningful to refer to the definition of memory as given by James: Memory is "the knowledge of a former state of mind after it has already once dropped from consciousness; or rather *it is the knowledge of an event, or fact, of which meantime we have not been thinking, with the additional consciousness that we have thought or experienced it before.*"³ Further he points out, "Memory requires more than mere dating of a fact in the past. It must be dated in my past. In other words, I must think that I directly experienced its occurrence. It must have that 'warmth and intimacy'...."⁴ Commenting on Retention and Recall, William James suggests that complete exercise of memory presupposes two things:

- (1) The *retention* of the remembered fact, and
- (2) Its *reminiscence, recollection* or *recall*.

² Sargent, S. S. *Teachings of the Great Psychology*, 1944.

³ William James, Op. cit., p. 287.

⁴ *Ibid.*, p. 283.

"Now the cause both of retention and of recollection is the law of habit in the nervous system, working as it does in the association of ideas."⁵ Thus in agreement with Hering, emphasis is laid on the physical and neurological basis of memory.

Ebbinghaus's Experiment

Hermann Ebbinghaus (1850-1909) published in 1885 a monograph called *Memory*. It was result of his five years of work on memory. In his methodology, he was influenced by Fechner. Thus by employing the scientific method, Ebbinghaus demonstrated that memory could be studied objectively. He devised several valuable methods of measuring memory. In order to overcome the "ready-made" associations, Ebbinghaus devised a new type of memory material, the so-called nonsense syllables. Thus it equalized as far as possible the background of different subjects so that each could begin with a clean "memory slate". Another advantage was that the same subject could be retested under different conditions and at different times 'with material sufficiently equal in memory value and homogenous in content to yield closely comparable results'. Ebbinghaus constructed about 2,300 nonsense syllables for his experimental use.

The phenomena of memory is sometimes classified under four heads of (1) fixation, (2) retention, (3) recall, and (4) recognition. "Fixation refers to the acquisition process, it is concerned with getting the impression, learning the new activity. Retention is usually thought of in physiological terms (brain traces, neurograms, etc.), it can only be measured (indirectly through recall and recognition). Both recall and recognition measure completeness of learning.... One recalls facts in answer to a general question (and)....he recognizes the 'right' answer as one response out of several possible responses...."⁶ Ebbinghaus studied problems relating to fixation and recall. In all his experiments, Ebbinghaus was himself a subject. He conducted his experiments very carefully and the problems which he studied fall into five heads:

"(1) What is the relation between the amount of material to be memorized and the time and effort required to learn it?

⁵ *Ibid.*, p. 289.

⁶ Garrett, H. E. *Great Experiments in Psychology*, 1941.

Specifically, what effect does the *length* of a series of nonsense syllables have upon the rapidity with which it can be memorized?

(2) What is the relation between amount or degree of learning and retention? What effect does the *number of repetitions* of a given series have upon its *retention*?

(3) How is *forgetting* related to the time-interval between learning and recall? What effect does the passing of time have upon one's memory for comparable series of nonsense syllables?

(4) What effect do *repeated learning* and frequent 'review have upon one's ability to retain what he has studied?

(5) What sort of connections are formed in learning: do they run forward serially from one term to the next following only, or do they skip terms in the forward direction, and even sometimes in the backward direction? What is the relative strength of these different associations assuming them to be so formed?

Ebbinghaus studied the above problems very carefully and his findings are very significant in the study of memory. It is not possible here to report in detail the experiments on problems listed above. Nonetheless, major findings of Ebbinghaus and his successors could be reported.

Importance of Meaning and Rhythm

As we know, nonsense syllables were devised by Ebbinghaus for making accurate study of rote learning and to equalize the learning background. Thus it was possible for him to compare the ability of different individuals since all were unfamiliar with the material to be learnt. With this material of nonsense syllables, Ebbinghaus devised an experiment in which he compared his speed of memorizing lists of nonsense syllables with his speed for meaningful material. He selected certain stanzas of Byron's *Don Juan* each of which had 80 syllables. He learnt each of the stanzas after about nine readings. On the other hand, in case of nonsense syllables, it took him about eighty repetitions to learn the eighty nonsense syllables. Thus it was found that in this experiment meaningless material was nine times as hard to memorize as the meaningful material.

Ebbinghaus employed a regular rhythm in all his learning, for he was led to believe that rhythmic groupings of syllables affected memorizing. But he did not find out the effects of rhythm. It was

George E. Muller (1850-1934), who discovered that groupings of syllables into unit helped memorizing. But due to individual differences in regard to rhythm, it could not be said that one type of rhythm for purposes of memorizing was best for all.

Length of Lists

It is our experience that the longer a poem, the harder it is to memorize it. Another allied problem is in regard to the relation between the amount of material to be memorized and the time and effort required to learn it. In other words, do the time and efforts needed, increase in arithmetical proportion? Ebbinghaus studies this problem and found that he could learn 7 or 8 nonsense syllables by reading them once only. But to learn ten nonsense syllables he needed thirteen readings. The time needed for each additional nonsense syllable in the list increased not arithmetically, but disproportionately. The following table indicates his findings:

<i>Length of List</i>	<i>Number of Readings</i>	<i>Time for Lists</i>	<i>Average Time per syllable</i>
7	1	3 in seconds	.4 in seconds
10	13	52	5.2
12	17	82	6.8
16	30	196	12.0
24	44	422	17.6
36	55	792	22.0

From the above table, it is evident that as the task of memory increases, we have to increase the number of readings and the time required. It is interesting to note that increase in time per syllable is very marked. It is perhaps due to the greater number of associations required. In other words, learning a long list of words, emphasizes the need for linking together its parts into a meaningful whole. Later studies by other psychologists have led to the same conclusion that there is no consistent arithmetical relation between length of list and learning time and that more associations require much more time per unit. It is, however, true that familiarity with the material to be memorized reduces the difficulty created by increased length.

Overlearning

Another problem tackled by Ebbinghaus related to what may be termed as 'overlearning'. In other words, the problem was: 'What was the relation between the amount or degree of learning and retention?' In order to solve this problem of the influence of 'overlearning' upon retention, Ebbinghaus performed the following experiment: "He read over lists of 16 syllables in exactly the same way and at the same rate, except that the number of readings varied from 8 to 64. This meant, of course, that some of the lists were over-learned to a very high degree. Twenty-four hours later he studied the same lists until he could just recite them once. He thus figured the percentage saved in relearning each list—i.e., he found how many repetitions *less* were required to relearn than to learn twenty-four hours before, and what percent this saving was of the original learning time. This method of studying memory was devised by Ebbinghaus and is known as the "saving method". Following are some of his results based in several lists:

Number of readings on the first day	8 16 24 32 42 53 64
% saved in relearning the list	
24 hours later	8 15 23 32 45 54 64

An analysis of the above result will indicate that percentage saved almost exactly corresponds to the number of times the lists were read. Thus we see that the list read eight times resulted in 8 percent saving in relearning it 24 hours later. Likewise the list read 64 times showed a saving of 64% in relearning it after 24 hours. In other words, each original repetition led to a saving of almost one per cent 24 hours later. But this cannot happen upto 100 percent, for a diminishing point is reached as Ebbinghaus discovered it himself. He tried to read a list 100 times and found that he could not do so due to fatigue, drowsiness and lapses of attention. In this manner, it was realized that there was a limit beyond which repetition was useless. The implication suggested by this experiment is that "degree of retention depends directly upon the amount of work done (overlearning), as well as upon the amount to be learned.

Another significant point in regard to overlearning, which is according to Ebbinghaus, any learning over and above that necessary to obtain one correct reproduction, leads to strengthening of

connections formed. This is possible upto a certain point which is roughly in proportion to the amount of study. This is important from the viewpoint of slow-learners, for it is suggested that a slow-learner has better retention than a fast learner. This is perhaps due to overlearning on the part of the slow-learner. By means of overlearning, a slow-learner is able to save more in relearning than a fast-learner. Several studies have followed this study by Ebbinghaus, and their results more or less have been in agreement with the result of Ebbinghaus. There is, however, no definite knowledge about the amount of overlearning which is useful for savings in relearning. But most of the psychologists seem to agree that "retention is increased by overlearning upto 50%; that is, spending 50% more time memorizing material than is required for one correct repetition. Overlearning beyond that point, except when spaced over several days, may involve inefficiency due to wandering attention, boredom and fatigue."⁷ To escape lapses of attention and fatigue etc., spaced learning is desirable.

Spaced Learning

The suggestion for spaced learning is presented on the basis of our common experience that a poem learnt long time ago, can be re-learned in a much shorter time. Another ground for this suggestion, is that a large amount of material to be memorized requires more effort and time and is likely to result in lapses of attention and fatigue. It was the experience of Ebbinghaus also. Other psychologists, like William F. Book and Karl S. Lashley discovered that spaced learning was desirable. For example, William F. Book found that in learning typing better results were achieved when practice time was disturbed. In the study by Lashley, it was discovered that rats learning a maze 'repeat errors more frequently when trials are bunched than when they occur a day apart'. In other words, in maze-learning by rats, best results were achieved from sparing the learning trials. The same was the finding of Robert M. Yerkes. Yerkes observed that "his dancing mouse learned to discriminate white from black faster when few rather than many trials were given the same day."⁸ An insight into the above results will reveal two factors operative in spaced learning. They are:

⁷ Sargent, op. cit., p. 214-215.

⁸ *Ibid.*

(1) length of the learning period, and (2) the interval between periods. If the learning period is long and the interval is very short, results are not good. If on the other hand learning is spaced in terms of time and interval, results are good. But due to individual differences it is not possible to prescribe a general optimum length of practice period or interval between periods. Besides individual differences, there is considerable variety in the nature of material to be memorized. Some material may be easy and some other may be difficult. And thus there is the question of motivation and interest. It has been found that when the interest and motivation are high and the material is easy, massed learning is most effective. Contrary to this, when there is no interest or motivation and the material is difficult, spaced learning is best. Thus there are many factors involved, and therefore, each individual may find for himself the optimum length of practice periods and the interval between them.

Whole versus Part Methods

Allied with the subject of spacing in learning is the problem of whole versus part methods. It is often asked is it better to memorize a poem one stanza at a time, or to go through it at each reading from beginning to end? Again individual variations will be found. Some individuals will like to memorize a poem stanza by stanza and some other may use the whole method. Experiments have been made to study this problem of whole versus part methods. Results of the majority of experiments indicate that whole method is more useful. For example, in one study it was found that whole method took 12% less time. In another study it was discovered that the whole method had a 15% advantage over part method. But again the effectiveness of a particular method should be seen in regard to the nature of material to be memorized. It has been observed that nonsense syllables, prose, poetry and vocabulary are memorized best by the whole method. The part method is more effective in case of maze-learning, though nothing can be said definitely. As John A. McGeech points out, "the whole-part problem is not one upon which an easy generalization can be made." If a subject has a high level of mental development, he will find the whole method more useful. In terms of time, when the practice period has no interval, perhaps the part method is more effective. When there is provision for time interval and distribution of time, the whole method is

better. But again meaning, rhythm and unity in the material also affect the method to be used. Sometimes variations of whole and part methods are used. There is the so-called "progressive part method" in which first one part is learned, then another part and then part one and two are continued and so on. In memorizing nonsense syllables, L. A. Pechstein found progressive part method very useful.

Commenting on the relative merits of the whole and part methods, R. S. Woodworth points out that a learner may like more to work with parts and thus acquire skill which is carried over to other parts of the material to be learnt. But again, the parts must be put together to form a meaningful whole. If the learner is able to adjust to the whole method when there is a need for it, it enables him to accomplish complex learning tasks. Finally, Woodworth is of the opinion that it is best to begin with the whole method and then devote attention to part whenever one feels like doing so.

Causes of Forgetting

The converse of remembering is forgetting, and its causes are numerous. We don't know the exact number of causes, but they are mainly of two types: (1) fading, and (2) blocking.

Though very little is known about the physiology of memory, it is the general belief that memory is somehow connected with the after-effects of neural activity in the brain. These after-effects, known as brain-traces or memory-traces, fade away if they are not reactivated. It is like the healing of a wound. Some psychologists hold the view that brain-traces never fade out completely. Due to practical difficulties, this cannot be verified. But there is enough evidence to suggest that material once memorized may be completely forgotten. Nevertheless, if the subject desires to relearn the material, he can do so in far less time. This suggests that due to fading it is not possible to recall the learnt material at the conscious level.

Blocking is another category of factors responsible for forgetting. We often struggle to recall a name, or a fact that we know but we cannot. Something comes in the way. The memory is "there", but due to blocking it does not emerge. Blocking occurs due to inhibitions and complexes pertaining to unpleasant events. In other words, we try to forget those things that are painful and unpleasant. The process of repression operates in such cases and the individual

finds it convenient to 'forget' unpleasant memories. But it is not possible to forget all unpleasant memories as there are some traces left behind and they appear in association with those things that remind us of the original events.

Experimental studies have shown that there are various factors involved in remembering and forgetting. These experiments were devised on the basis of retroactive inhibition. For example, the basic pattern of these experimental studies tries to equate two groups of learners, permitting one group to rest while the other group performs some other type of activity. The second group also performs retesting on the original material learnt. The results have indicated that interpolation of activity leads to the following:

"(1) The greater the degree of original learning the less the effect of the interpolation activity; (2) with the degree of learning held constant, interference is greater with additional repetitions of the interpolated activity; (3) with the degree of original learning held constant, interference is greater with increasing amounts of material interpolated, more so than with repetitions of a smaller amount of material; and (4) the less activity intervening the less the forgetting."⁹

Thus it is evident that interpolated activity has relationship with the amount of the original learning as well as with the amount of intervening activity. The four conclusions stated above throw enough light on the nature and degree of forgetting due to intervening activities.

Forgetting occurs when there is a change in the setting of the remembered material. We try to associate learnt things with a particular surrounding. It is quite possible for us to forget a name of a person when we meet him in an unexpected place. The reason is that we associate people with the surrounding in which they live and work. Thus it is concluded that recall is possible in a situation where cues pertaining to original stimulus for remembering occur.

Factors in Retention

After considering the factors responsible for forgetting, it is desirable for us to acquaint ourselves with those factors that are

⁹ Feryer, D.H., et. al. *General Psychology*, 1954.

involved in retention of material learnt. According to Gillette more intelligent persons have greater retention than the less intelligent. Allied with this is the view that those who learn rapidly have better retention than the slow learners. In other words, the factor of individual differences operates in retention.

The second factor is related to exceptional memory. Some people have exceptional memory with the result that they are able to memorize and retain difficult materials. Such people specialize in remembering certain special types of materials. They have been observed to practise at every opportunity and exhibit their exceptional activity when there is a persistent demand or request. As stated earlier display of exceptional memorization is made under very special circumstances.

The third factor in retention is the nature of material learnt. If the material is meaningful it is retained more easily than the meaningless material. Learning of such activities as are of perceptual-motor type are not easily forgotten. In other words, perceptual-motor activities become integrated habits and therefore, are easily retained. One good example of this category of activity is typing. Typing involves perceptual-motor activity and becomes a kind of integrated habit and thus is retained for a long time.

Other factors in retention are pleasantness associated with material learnt, degree of original learning, distribution of practice, recitation of remembered learning and purpose of learning. The principle of *zeigarnik* operates in those tasks which are uncompleted. Thus interrupted and uncompleted tasks are easily recalled than those which are completed.

Commenting on the nature of the retention Lovell states that retention is the second stage of the memory process. According to him it is an unconscious activity and during retention brain undergoes some kind of structural changes of sub-microscopic size. In this way it is suggested that retention depends upon settled physiological changes in the brain and so long as these changes remain unaffected it is possible for a person to retain in his memory what he has learnt. In other words, forgetting takes place when the structural changes in the brain are affected.

Studies have shown that the retention of rote material in terms of time is first rapidly lost within few hours of learning and thereafter the decline of retention is rather much slow. It has also been observed that retention is better during sleep than during waking

hours. It is due to the fact that when we are asleep there is no such activity involved that is likely to affect the retention of rote material. Muller and Pilzecker made a study in 1900 and found out that if the interval between the material learnt and its recall was filled by learning some other material then less of the previously learnt material was recalled. On the other hand if this interval was spent in resting then the recall was much better. In other words, there was some kind of 'back action' made by the second task on the first one. This is also called 'retroactive inhibition' which we considered above in connection with factors of retention. There is a phenomenon pertaining to remembering and forgetting known as reminiscence. Ballard while studying remembering and forgetting of children aged about 12 years discovered that, "a partially learnt poem was recalled better after two or three days than immediately after learning. He called this phenomena reminiscence."¹⁰

Remembering and forgetting are related to the process of memory. This process involves first learning, then retaining and finally the recall. Recall is a complex aspect of remembering involving recognition and is affected by emotions and motivation. In other words, the process of memory right from the beginning is emotionally coloured and is influenced by the motivational pattern of the learner. Bartlett in his book on *Remembering* (1932) reports an experiment in which he asked his subjects to study a passage for a fixed period of time. Then the subjects were required to reproduce the studied material immediately and they did so. Thereafter Bartlett gradually increased interval between the learning of passage and its recall. The interval of time increased by Bartlett was for example everyday for a week and then weekly for a month. This method was called as *repeated reproduction*. During this process of repeated reproduction certain tendencies and changes were observed. According to Lovell these are: (a) A tendency to 'round off' and simplify so that the elements of the story or diagram fall into general accord with the whole. Thus one of the factors in distortion seems to be the tendency to form a strong gestalt; (b) Effects due to the subject's personality. Sex, interests, attitude and prejudice frequently play a part. For example racial prejudice may affect the recall of a picture containing a Negro; (c) A tendency to fill in any apparent gaps in the story

¹⁰ Lovell, K. *Educational Psychology and Children*, p. 123,

or diagram, that is a tendency towards progressive rationalization; (d) A tendency for repeated reproduction to be more consistent with the first reproduction than with the original.¹¹

Thus recall is affected by repeated reproduction and changes occur as stated above. In this connection the ideas expressed by Stern and Freud are mentioned by Lovell. According to him Stern is of the view that "when memory images are put into words oversimplification and inaccuracy in recall are very marked." Further it is stated that Freud and his followers maintain that "it is often impossible to recall events associated with a sense of guilt or shame." It may be noted here that due to mechanism of repression recall is affected and thus retention by itself is not defective. There are other aspects of remembering and forgetting which are being studied by psychologists and educators for memory is extremely important for successful living.

¹¹ *Ibid.*, p. 124.

CHAPTER 11

THEORIES OF LEARNING

Learning involves acquisition of new behaviour. It is a kind of change in relation to a pattern of behaviour. The individual has to learn new ways of doing things as well as new ways of thinking and feeling as he tries to adjust within his environment and to make himself useful. Learning is also dependent upon one's innate intelligence and other capacities. It is on the basis of hereditary endowment that one can learn different types of activities and behaviour patterns. Thus the basis of learning is an individual's innate and hereditary capacities including intelligence and temperament. In other words, learning is not possible without the basic minimum ability needed to learn a task. As the nature of the task becomes complex so is the requirement for higher abilities is increased.

Learning is related to maturation. Unless and until there is the needed maturation satisfactory learning is not possible. So learning and maturation go together, for the maturity of the individual is an important condition in learning new task. Then there is the environmental aspect of learning which includes opportunities as well as facilities to learn. It is not uncommon to find an extremely poor child who is very intelligent but remains illiterate as educational opportunities were not available to him. This highlights the point that natural mental endowment cannot be fully utilised without proper facilities for education. These are some of the general features of learning. But psychologists have been seriously concerned with the nature of learning and its laws so that human efforts could be economised and better performance be achieved. Some of the problems facing them are in relation to the limits of learning, over-learning, role of practice in learning, motivation and learning, and transfer in learning, etc. The study of these problems led to the appearance of various theories of learning. We shall consider important theories one by one.

CONNECTIONISM

The theory of connectionism is associated with the name of E. L.

Thorndike (1874–1949). His studies of animal intelligence provided enough material for this theory. When his book *Animal Intelligence* was published in 1898 it attracted attention of the contemporary psychologists and impressed upon them the fact that there was a bond between sense impressions and impulses to act. This bond or connection was very much emphasized. That is why Thorndike's theory of learning known as connectionism or sometimes bond psychology.

Thorndike dominated the psychological scene for about 50 years and during this period the study of learning was done in great detail. Before 1930 he was very much concerned with the trial-and-error learning. He performed a number of experiments on animals to prove that learning was mostly a matter of trial and error. He made a special type of box known as problem box. In the problem box a hungry cat was closed with the provision that if the cat could try to escape from the box she could do so after some trials. Since the cat was hungry and the food was outside the problem box she was impelled to try to get out of it and the experimenter counted the number of efforts the cat made to get out of the box. Thus it was observed that after a number of trials gradually the cat learned to open the box with less effort than before.

As stated earlier the hungry cat was motivated by the food placed outside the box. If the cat were not hungry and there was no food outside the box there could have been very little effort on the part of the cat to get out of the box. This was recognized by Thorndike and for this purpose he framed a law and called it the law of effect. This law in a way stands for motivation as we understand it today. Thorndike was convinced that unless and until the learner found satisfaction after learning a task there could be no guarantee for doing full effort by the learner. He stated, "when the law of effect is omitted—when habit formation is reduced to the supposed effect of mere repetition—two results are almost certain. By the resulting theory, little in human behaviour can be explained by the law of habit; and by the resulting practice, unproductive or extremely wasteful forms of drill are encouraged". Thus he made clear that any effort without reward or satisfaction will not be effective. This finding of Thorndike was greatly appreciated in educational circles and proper provision of reward in learning was made. Previously there was greater emphasis on punishment than on reward. But studies by Thorndike and others of his mind made it quite evident

that reward was more effective in learning than punishment. Though one could learn something in order to avoid punishment but on the whole reward was more effective.

Laws of Learning

Thorndike was greatly encouraged by the studies of animal learning and gradually he tried to apply these findings on human learning. He found that there were three main laws of learning. One law was that of effect which we have already considered. The other two laws were that of readiness and exercise. According to Thorndike, "both theory and practice need emphatic and frequent reminders that man's learning is fundamentally the action of the laws of readiness, exercise and effect". He further observed that the individual was, "first of all an associative mechanism working to avoid what disturbs the life processes of the neurons. If we begin by fabricating imaginary powers and faculties, or if we avoid thought by loose and empty terms, or if we stay lost in wonder at the extraordinary versatility and inventiveness of the higher forms of learning, we shall never understand man's progress or control his education".¹ Thus Thorndike made it clear that learning was governed by the laws of readiness, exercise and effect and these can be very useful in understanding the process of education and the progress of an individual.

Thorndike explained these laws in great detail. According to him the law of readiness was indicative of the learner's state to participate in the learning process. We have already mentioned that maturation was involved in learning and what Thorndike means by readiness is to some extent related to the concept of maturation. There are three conditions pertaining to readiness mentioned by Thorndike. These are as follows:

(1) When a conduction unit is ready to conduct, conduction by it is satisfying, nothing being done to alter its action.

(2) For a conduction unit ready to conduct not to conduct is annoying, and provokes whatever response nature provides in connection with that particular annoying lack.

(3) When a conduction unit unready for conduction is forced to conduct, conduction by it is annoying.

¹ Thorndike, E. L. *The Psychology of Learning* (1913).

The law of exercise emphasizes practice in learning on the assumption that without practice learning is not lasting. The law of exercise is also related to what is known as repetitive habits. When an individual is in the habit of repeating some behaviour is also taken as a part of exercise. Thus the three laws of learning propounded by Thorndike before 1930 became popular but were also critically examined by some psychologists with the result that there were some strong critics of Thorndike's view of learning. Thorndike was constantly examining his own position and performed a number of experiments to find out the real nature of learning. During this process he discovered five subordinate laws. These subordinate laws explained further the nature of learning and its processes. The first subordinate law was that in a problem situation a learner is liable to make multiple response. When the right response is made the learner experiences satisfaction. Thus according to Thorndike the first subordinate law is that of multiple response which enables a learner to vary his responses in a manner that he is able to achieve success.

The second subordinate law or principle is that in learning the attitude or set of the learner is an important factor. The attitude of the learner is indicative of his desire and satisfaction. If the task to be performed by him is of his liking and enables him to derive satisfaction he performs it well. Thus the attitude or set is the second principle in learning.

The third subordinate law is that a learner selects from a situation only such items as are directly related to his learning effort. In other words, the learner reacts to a learning situation in a selective manner. He uses his "insight" and selects "prepotent elements".

The fourth subordinate law or principle is based upon a learner's ability to respond on the basis of his previous experience. When a learner observes a learning situation he is likely to make response on the basis of some such situation as has resemblance with the previous one. Thus he makes *response by analogy*. In other words, there is no response by a learner entirely unconnected with his previous responses. The old responses provide analogy in a situation demanding new situations. The fifth and final subordinate law is that of associative shifting. According to Thorndike the most important feature of associative shifting is that we may "get any response of which a learner is capable, associated with any situation to which he is sensitive." In other words, the elements of association

and similarity enable a learner to attempt associative shifting. It is a kind of conditioning which has been described in detail by Guthrie. But as stated earlier Thorndike was always examining his laws and revising them in the light of new knowledge.

After 1930 Thorndike revised his laws of learning to a very great extent. He himself admitted before the International Congress of Psychology in 1929 that his views regarding laws of exercise and effect were not totally correct. Therefore, after 1930 Thorndike's connectionism was radically revised. In this revision we notice that the law of exercise was practically abandoned for exercise or practice in learning can be effective only when the learner desires to strengthen the connections or bonds otherwise exercise or practice by itself is meaningless. The main idea is that connections or bonds become strong by exercise only when there an element of reward is inherent in it. If it is a purely mechanical, lifeless practice it has no effect. Then the law of effect was stated in a manner which dispelled the wrong notion that reward and punishment were called effective in learning. The later position was that reward was more effective than punishment. About reward and punishment Thorndike said, "the results of all comparisons by all methods tell the same story. Rewarding a connection always strengthened it substantially; punishing it weakened it little or not at all". The further studies of the law of effect brought in new concepts and terms. For example the term belongingness was used to indicate that a connection had better chances of being strengthened when it belonged to the general pattern of a learner's experience. In other words, Thorndike hinted that phenomenon which is emphasized by the Gestalt group. Thus the concept of belongingness brought in the forefront the idea that reward or punishment was effective to the extent it satisfied the desire of the learner. To illustrate this point it has been said that, "to be rewarded by having your thirst quenched when you lift a glass of cool water to your lips is reward with belonging". Another new concept introduced in Thorndike's connectionism was that of polarity. Polarity stands for a condition in which "connections act more easily in the direction in which they were formed than in the opposite direction". In other words, when a task is learnt and the direction which it follows provides polarity and due to this it can be easily performed following the same direction. If an attempt is made to perform a learnt task from the opposite direction then it cannot be done well.

Around 1933 Thorndike was in a position to explain further the law of effect. He collected evidence to support the idea that effect was not confined to a particular task but it also had a "spread". Thorndike gave a new concept of *spread of effect*. The idea underlying this concept is that connections formed pertaining to a task produce such effects as do not remain confined to that particular task but also influence the adjoining or similar tasks. In other words, we can observe a gradual decrease in effect. It is something like a curve whose two ends are indicative of diminishing effect.

To sum up, Thorndike's connectionism which started with the studies of animal learning gradually became a powerful theory of learning. It provided base material for further work by behaviourists and psychologists of other shades. Thorndike's connectionism influenced to a great extent educational practices of the time. It changed the prevalent idea about reward and punishment. It stated clearly that reward was more desirable in teaching and that it helped in the strengthening of connections and bonds more effectively than punishment. Roback states, "Thorndike is known in psychology for his "theory of effect" according to which the satisfaction gained by an act tends to stamp it in, so that it will recur".² Further he is of the view that Thorndike was the leading educational psychologist in the United States for number of years. Thus we can say that Thorndike was essentially an educational psychologist and his work at the Teachers College, Columbia University is a matter of pride for educational psychology.

Contiguous Conditioning

(E.R. Guthrie propounded a theory of learning based upon contiguous conditioning.) The process of conditioning enables an inadequate stimulus to function as adequate stimulus when both the inadequate and the adequate stimuli are presented in temporal or spatial contiguity. In other words, contiguous conditioning involves the development of a system of responsiveness to a specific stimulus in which association plays an important part. That is why there is a mention of association by contiguity which implies the relationship between two or more stimuli pertaining to situation ideas or concepts that have been experienced in terms of time or space rather closely. A good example of this kind of contiguity is

² Roback, A. A. *History of Psychology and Psychiatry*, 1961.

provided by the alphabet. Each letter of the alphabet is associated with the succeeding other by contiguity and thus there is a quick response.

✓ (Guthrie's system is also known as stimulus-response association psychology. It is called so far it realizes the stimulus-response mechanism of learning to a great extent. In a way it is refinement of Thorndike's theory of learning) and is thoroughly objective and practical. (The contiguous conditioning is a product of the behaviouristic psychology and based upon rigorous experimental studies of conditioning. No doubt (studies by Pavlov and Bekhterev as well as by John B. Watson prepared a background for the exposition of contiguous conditioning.) The work stated with the study of conditioned reflex. Pavlov discovered that conditioned responses were possible and they could be strengthened by reinforcement. The term reinforcement stands for "strengthening of a conditioned response by reintroducing the original unconditioned stimulus". When there is a lack of reinforcement for a conditioned response, it is likely to be weakened and extinction may take place. Then there are the concepts of generalization and discrimination. The concept of generalization deals with that process by which "a novel stimulus produces a response learnt to another similar stimulus." In other words, when a response that has been associated with and conditioned to a given stimulus is elicited by other similar stimulus or stimuli, generalization takes place depending upon the similarity between the originally conditioned stimulus and the stimulus to which the response is generalized. As regards discrimination it occurs when the two generalized stimuli are distinguishable and it is possible to eliminate one of them by method of contrast or some other type of training. In such a case selective extinction occurs and this is known as conditioned discrimination "because the organism has learnt to react differently to the two stimuli which at first evoked more nearly the same response."

Guthrie has described his theory of learning in a rather simple manner but in reality it is very complexed. For example according to Guthrie, "a combination of stimuli which has accompanied a movement will on its recurrence tends to be followed by that movement". In this statement we find emphasis being laid on the combination of stimuli and movements. This is one of the basic laws of learning propounded by Guthrie. According to him movement is an essential part of learning, for these movements

produce stimuli. It is pointed out that the gap between the stimulus and response is filled in by movements. Movements are also an essential part of practice. Though Thorndike did not find practice in learning effective, Guthrie considers practice or repetition essential for it leads to improvement.

Another statement of Guthrie which provides a basis for understanding his learning theory is that, "a stimulus pattern gains its full associative strength on the occasion of its first pairing with a response". Here we find association providing strength to pattern of responses. What is implied here cannot be understood easily. But generally speaking Guthrie is hinting at the element of recency involved in learning. Later on he threw light upon associative inhibition forgetting and the breaking of habits. He also suggested some of the ways in which an undesirable activity could be weakened. (Guthrie examined the place of motives and rewards in learning and came to the conclusion that motives and rewards merely accelerate the movements in learning. He emphasized the role of cue in learning.) According to Hilgard³ the following suggestions recur in the writings of Guthrie:

"(1) If you wish to encourage a particular kind of behaviour or discourage another, discover the cues leading to the behaviour in question . . . This is all that is involved in the skillful use of reward and punishment.

(2) Use as many stimulus supports for desired behaviour as possible, because any ordinary behaviour is a complex of movements to a complex of stimuli. The more stimuli there are associated with the desired behaviour, the less likely that distracting and competing behaviour will upset the "desirable behaviour."

In the beginning Guthrie's theory of learning lacked experimental evidence but later on in collaboration with Harton he performed a number of experiments using a puzzle box and cats. They were able to collect enough evidence for their following statement:

"It has been our conclusion from our observation of this series of experiments that the prediction of what any animal would do at any moment is most securely based on a record of what

³ *Theories of Learning*, 1948,

the animal observed to do in that situation at its last occurrence. This is obviously prediction in terms of association."⁴

There have been critics of Guthrie and Harton experiments and they have pointed out that these experiments did not really describe the nature of learning. What they did was merely an account of uniformity found in repetition of learned acts. According to Hilgard the problem box devised by Guthrie and Harton was not satisfactory from the point of view of the study of real learning. It simply provided opportunity to study cue-response relationships.

To sum up Guthrie's theory of learning it may be stated that he emphasized conditioning in relation to continuity and association. He did not consider reward as a primary factor in learning. For him the provision of cues was more important than reward and punishment. Comparing Thorndike and Guthrie, Hilgard observes, "By contrast with Thorndike, Guthrie is an avowed behaviourist, who makes it a matter of some importance to get rid of subjective terms, to refer, for example, to inner speech instead of to thinking. The emphasis upon movement-produced stimuli is part of this older behaviourist tradition which Guthrie carries into the present. While an orthodox behaviourist in these respects, his is an informal behaviourism, with little of the brittleness of earlier Watsonianism."⁵

Peel has pointed out that in conditioning new learning is responsible for "unlearning, relearning, forgetting and unconditioning". According to him, "connectionism emphasizes the influence of 'effect' in the formation and stabilization of S-R bonds. Successful responses are 'stamped in'; unsuccessful ones tend to be eliminated. Trial and error forms the basis on which new responses are tried out. Conditioned response theory accounts for the formation of new S-R bonds in terms of the proximity of stimuli and responses."⁶ Thus we have a clear and concise as well as a comparative statement pertaining to connectionism and conditioned response theory which highlights the main characteristics of the theories of learning considered so far.

⁴ Guthrie and Harton, *Cats in a Puzzle Box* (1946).

⁵ *Ibid.*, p. 27.

⁶ *The Psychological Basis of Education*, p. 21.

Hull's Theory of Behaviour

(Clark L. Hull is one of those behaviourist psychologists who have followed behaviourism to the full. Hull studied human behaviour and learning keeping in view the scientific method and avoided all references to consciousness.) He approached the problem of learning by concentrating on nature and formation of habits. In other words, (Hull's primary concern has been the nature and formation of habits.) In this he also utilized the conceptual frame-work of conditioning. His study of Pavlov's work greatly helped him in this matter.

Though it is not possible to present Hull's theory of behaviour in detail, we shall try to acquaint ourselves with its main features. To begin with we may note that Hull's theory as broadly speaking has few new concepts. (The conceptual framework provided by Thorndike and Guthrie has been systematically utilized by Hull.) This may be considered as one of the main features of his theory. In other words, (he approached the problem of learning scientifically and systematically.) There is no flaw in his rigorous methodology. Thus we can say that Hull's theory of behaviour is systematic, scientific and entirely objective.)

Hull has propounded a number of postulates. These postulates are 16 in number) and they have been thoroughly discussed in his book *Principles of Behaviour* (1943). In Hull's theory of behaviour it is assumed that, "the complete behavioural event begins with stimulation provided by the external world and ends by a response, also part of the interplay with the environment. Everything else lies within the organism as influencing in one way or another the prediction as to what response will occur, if any, following the onset of the stimuli"⁷. The central idea in Hull's system has been further developed into sixteen postulates. These postulates are somewhat mathematical in nature and, therefore, they present possibilities for quantitative calculation. Hilgard has paraphrased these postulates and commented upon them. The reader is referred to his work for the detailed study of these postulates. For our purposes it is sufficient to know that (Hull was deeply interested in the habit formation as well as the nature of reinforcement.) In this connection he points out the role of need-reduction in reinforcement.) Previously reinforcement was considered in terms of reward

⁷ Hilgard, p. 81.

and satisfaction only. But Hull stated that to escape pain, punishment or to reduce need is also a kind of reward and helps in reinforcement. As regards the role of punishment in learning and its relation to the theory of reinforcement Hull has pointed out that in learning by punishment the problem of need-reduction is present. When the individual has to learn in order to avoid punishment he is in a way attempting for need-reduction. In other words, escape from the pain of punishment serves as a reward. This has been criticized by some psychologists on the ground that Hull failed to differentiate between escape and avoidance. There is difference between escape and avoidance and, therefore, whatever is done to avoid a situation cannot be regarded as reward. On the other hand all escape is a kind of reward. But it is not so in the case of avoidance. Nonetheless it has to be noted that to equate escape with reward is not totally correct. Hull has given a stretched meaning to escape and brought it close to reward. Theoretically speaking it may sound correct but actually reward implies some positive achievement and satisfaction.

(Hull paid due attention to the neurological basis of behaviour and concentrated upon the biological needs as well as their role in human behaviour.) He believed that the human organism had a hierarchy of needs and they required necessary responses in order to be satisfied.) These responses could be gradually reinforced and a kind of habit may be formed. Hull discusses reinforcement and habit strength in his fourth postulate. This postulate is based upon the assumption that if the need is great it requires reinforcement. Then there is the relationship between response and reinforcement. This relationship is temporal and if there is undue delay it is likely to be weakened. The fourth postulate as stated by Hull is reproduced below with a view to give an idea of the systematic approach adopted by him.

“Whenever an effector activity ($r \rightarrow R$) and a receptor activity ($S \rightarrow s$) occur in close temporal contiguity (sCr), and this sCr is closely and consistently associated with the diminution of a need (G) or with a stimulus which has been closely and consistently associated with the diminution of a need (G), there will result an increment to a tendency (ΔsHR) for that afferent impulse on later occasions to evoke that reaction. The increments from successive reinforcements summate in a manner which yields a combined

habit strength (sHr) which is a simple positive growth function of the number of reinforcement (N). The upper limit (m) of this curve of learning is the product of (1) a positive growth function of the magnitude of need reduction which is involved in primary, or which is associated with secondary, reinforcement; (2) a negative growth function of the delay (t) in reinforcement; and (3) (a) a negative growth function of the degree of a synchronism (t) of S and R when both are of brief duration, or (b), in case the action of S is prolonged so as to overlap the beginning of R, a negative growth function of the duration (t) of the continuous action of S on the receptor when R begins."⁸

This postulate has a central place in Hull's theory of behaviour and provides the necessary framework for detailed study. Hull made a number of quantitative experimental studies and provided empirical evidence for his theory of behaviour. He threw light on the nature of motivation and explained it in relation to need-reduction. As stated earlier, his theory of reinforcement has been also very popular and at the same time it has been sufficiently criticized. Nonetheless, his contribution to theory of learning is immense and he has proved with reliable evidence that the behaviouristic theory of learning can explain the origin of behaviour, the learning of new behaviour and the related psychological variables. We have already noted the flaw in his approach to regard escape from pain as a kind of reward. This is perhaps one of the major weak points in his theory.

Reinforcement

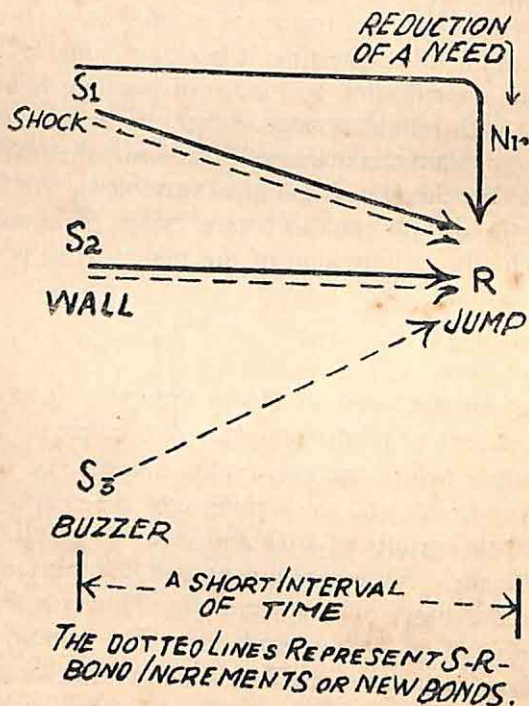
After having an over-view of Hull's theory of behaviour, let us consider his concept of reinforcement. According to him, animals as well as human beings are constantly engaged, in strengthening the existing S-R bonds and developing new S-R connections. The S-R bonds are the results of trial and error in which law of effect is most significant. As regards new S-R connections, they are developed on the basis of conditioning. (Thus we find in Hull's theory a combination of trial and error and conditioning. The importance given to the law of effect is also indicative of the significant place occupied by motive or need. As stated earlier, Hull has considered need reduction as a kind of reinforcement.) According

⁸ *Principles of Behaviour*, p. 178.

to him when there is a reduction of need S-R connections are reinforced.)

It may be mentioned here that the development of new S-R connections imply the strengthening of present S-R bonds. In this process reinforcement plays an extremely important part. Throwing light on the nature of reinforcement Hull points out that there is a law of primary reinforcement which is: "whenever a response R follows quickly upon a stimulus S and this conjunction of S and R is closely associated in time with the diminution of a need, there will be an increased tendency for that S-R to recur on later occasions".⁹ This law of primary reinforcement has been illustrated by some experiments and the net result can be represented by the following diagram:

Figure 17



⁹ Peel. *Psychological Basis of Education*, p. 24.

Secondary Reinforcement

In order to explain the time-lag between reinforced response and the reinforcing need reduction (Hull has propounded the principle of secondary reinforcement.) This principle is stated by Peel in these words, "briefly, according to this theory, the S-R connection which has been reinforced by the primary need reduction *acquires itself the power to reinforce any other contiguous or immediately antecedent S-R connection*, and this S-R connection in turn may reinforce any other contiguous or immediately antecedent S-R response". (The nature of secondary reinforcement is very well revealed in an experiment performed by Pavlov. In this experiment a hungry dog was allowed to listen a ticking metronome and then after 30 seconds he was given food. This practice was followed till the dog started salivating without food. In other words, the ticking metronome stimulus became conditioned to the salivating response and thus the stimulus in the form of ticking and response in the shape of salivating established the S-R connection which was being enforced by need reduction pertaining to food. This is the primary reinforcement. Now in order to introduce the secondary reinforcement the following procedure was followed:

A black square was put before the dog's eyes for 10 seconds and then it was removed. After 15 seconds the metronome started ticking for 30 seconds, but no food was given. Even then due to primary reinforcement salivating response occurred. After some time the placing of black square before the dog's eyes alone produced salivating response. As we know that at no stage food was given to the dog, in this case the salivating response resulting from the presentation of the black square was entirely due to its association with the ticking metronome stimulus. Thus it is concluded that "the metronome had not only acquired the capacity to evoke the flow of saliva but had also acquired the capacity to act as a reinforcing agent."¹⁰ In other words, the metronome had acted as a secondary reinforcement. ✓

(The concept of the secondary reinforcement has been applied in teaching to a great extent and Peel has very well demonstrated the application of this concept in teaching.) In order to illustrate the

¹⁰ Hull, *Principles of Behaviour*, quoted by Peel.

working of the principle of secondary reinforcement Peel has provided an example in which a child is encouraged to complete a arithmetical calculation. He supposed the sum to be worked out as $\frac{3}{8} + \frac{5}{24} = \frac{7}{2}$. The process of calculation involved has been explained in terms of primary and secondary reinforcement.

According to Hull if the time interval between stimulus and response is increased there is a gradient indicating the fall off in strength of a learned behaviour or habit. In other words, "this fall off in strength of habit as reinforcement is delayed and is called the gradient of reinforcement".

Then there is the concept of secondary drive which has been developed particularly by Mowrer. Secondary drives are developed out of primary drives in the same manner as secondary reinforcements are the products of primary reinforcements. It has been found that secondary drives are learnt. Emotions such as anxiety and fear are secondary drives which have been developed from a primary drive of pain or hunger. Thus it is assumed that human emotions and motives are mainly secondary drives.

In Hull's theory there is another concept which is known as stimulus generalization. The strength of a stimulus has the ability to develop an area of its influence. For example if a stimulus creates loud noise its area or zone would be in terms of its intensity. In other words, every primary stimulus has the capacity to generalize itself when it is in contact with other stimuli. The concept of stimulus generalization is helpful in understanding the common mistakes made by students particularly in spelling certain words. Words having similar sound and different spellings are sometimes written incorrectly due to stimulus generalization. In this connection the existence of secondary stimulus generalization is also assumed. This secondary stimulus generalization has been utilized in the preparation of intelligence tests.

Hull's theory of learning is helpful in understanding the process of forgetting. When some such S-R connections have been established as are likely to prove useless to the learner they are 'broken' due to lack of reinforcement. Thus extinction of useless learnt material takes place. Another factor responsible for forgetting is fatigue. When forgetting occurs due to fatigue Hull calls it *reactive inhibition*. Thus forgetting takes place firstly on account of disuse and fatigue.

So far we have considered those theories of learning which are behaviouristic in nature. Now we shall consider some such theories

of learning as are related to the gestalt approach.

Gestalt Approach to Learning

The behaviouristic approach to learning did not satisfy those psychologists who were prone to study human behaviour as a whole. In other words, the gestalt approach to learning required an examination of learning processes in such a manner as enabled a student of psychology to understand learning in its totality.

Experiments by Kohler

As we know gestalt psychology has been primarily concerned with the nature of perception. How an individual perceives wholes and not parts has been explained by gestalt psychologists on the basis of numerous experiments. As regards learning, experiments by Kohler and Koffka have proved very useful. Kohler made a study of learning by apes and after some time published a book on *Mentality of Apes* (1925). In this book Kohler described those experiments with apes which were performed on the island of Tenerife during the period 1913-1917. There were certain experiments which were based upon box-problems and some others on stick-problems. A typical example of box-problems learning is that of a chimpanzee which was required to get a banana hung from the roof of his cage. The chimpanzee could not reach the banana merely by jumping. But there was a box placed inside the cage and the chimpanzee worked out a scheme in which he had to place the box below the banana so that he could climb on it and reach the banana. This experiment showed that the chimpanzee had the insight to use the box in order to reach the banana. There were other experiments on this line which required the use of box in a number of ways.

A typical example of the stick-problems is that the chimpanzee enclosed in the cage has to get a banana placed outside the cage and not within his reach. In order to get the banana he has to use the stick placed inside the cage. This is briefly the nature of activity involved in stick-problems devised by Kohler. (All these experiments showed that learning was not the result of trial and error but of insight and the ability to see relationship between the various factors involved in a situation.

Koffka suggested that in learning the laws of perception were equally applicable.) But he did not provide enough experimental evidence to prove their application. Nonetheless it is fair to assume

The law of closure indicates that, "closed areas are more stable than unclosed ones, and therefore, more readily form figures in perception". The law of closure is in a way similar to the law of effect described by Thorndike. Unless the work is finished the individual concerned does not feel satisfied. This has been explained by Koffka in these words:

"So long as activity is incomplete, every new situation created by it is still to the animal a transitional situation; whereas when the animal has attained his goal, he has arrived at a situation which is to him an end-situation."¹¹

The law of good continuation stands for that tendency in organization of perception in which "a straight line will continue as a straight line, a circle as a circle and so on". In other words, the law of good continuation indicates the tendency of factors to behave in a manner that they show the direction, movement and continuation. In learning the law of good continuation facilitates the practice. Thus the four laws of perceptual grouping as propounded by Wertheimer have been applied to learning.

Other Aspects of Learning

In gestalt psychology the simple features of learning have been discussed on the lines of perceptual grouping. But there are special problems of learning which require further explanation. Koffka studied these special problems and tried to apply the laws of memory to insightful learning. For example it is assumed that past experiences leave some kind of trace on the memory and the function of learning is to strengthen these traces and create new ones. The trace theory is a complex one but its essential features are that a trace is the result of an experience and in its persistence there is the conservation of past experiences and also the base for new experiences is provided. Then it is a kind of process also which is selective and determines the nature of new traces in the light of a learner's needs and demands in a given situation. There have been numerous experiments to show the importance of traces in learning. Koffka has pointed out the difference between the process and the trace involved in learning. According to him, "the process is that which goes on because of the

¹¹ Koffka, K. *The Growth of the Mind*, 1924, quoted by Hilgard.

present stimulating situation; the trace is the result of early processes". Thus processes and traces go on together. In this connection it has been pointed out that practice or repetition strengthen traces of the memory. These traces are reconstructed in terms of the problem to be solved.

As regards the working of insight it has been pointed out that insight depends upon various factors. One of the factors is that of capacity. The learner must have the necessary capacity for insight which depends upon his age and mental make-up. It has been observed that young children have less insight than the older ones. The second factor affecting insight is that of previous experience. A learner can use insight on the basis of his previous experiences. He draws upon his previous experience in order to understand a problem. Therefore, the nature of previous experiences of a learner have an important place in the development of the insight. The third factor is related to the experimental arrangements. In other words, insight can occur only when there is an arrangement in the learning situation so that field is easily organized. If the learning situation lacks arrangement and the field cannot be organized then insight is rather impossible. The fourth factor affecting insight is of course related to the initial effort made by a learner in order to organize the learning situation. This is marked by "a period of fumbling and search". We may say that this is a kind of trial and error effort made by a learner. Nonetheless it is purposeful and helps in the development of insight. Another typical feature of learning by insight is that a learning acquired by insight can be easily repeated. In other words, there is a purposive and meaningful acquisition of a skill by a learner and there is no difficulty in its repetition. Related with this is the possibility of application of a learning by insight to a new situation. Whatever is learnt by insight can be easily applied in the solution of new problems. Thus learning by insight has a number of advantages for it is meaningful and enables a learner to improve his capacity for better problem solving.

Wertheimer has discussed the gestalt approach to learning, especially child learning in his book *Productive Thinking* (1945). In this book a number of experiments have been described to show that children can learn better by problem solving method and insight can be developed in them by providing opportunities for productive thinking. The gestalt approach to learning emphasizes the wholeness

of experience and the formation of configuration. From educational point of view it is necessary for the teacher to help students in acquiring such experiences as are helpful in the development of insight. It is also necessary that pupils are taught to approach a problem in a detached manner. Detached and objective approach helps to a pupil to look at a problem and arrive at its conclusion by insight. According to Peel, "when a skill is being acquired, insight-into it can be greatly aided by analysing the parts of the skill and by verbalising them. When we are acquiring verbal or abstract knowledge the insight may be aided by *modelling* the abstract knowledge as when we use visual aids to help say history teaching."¹²

✓ Tolman's Theory of Sign-Gestalt

As the name indicates this theory is based upon the assumption that learning follows certain cues or signs leading to the task to be performed. In other words, the sign-gestalt theory of learning assumes that learning is purposeful and meaningful. It is not purely a matter of meaningless effort but a meaningful activity being performed in terms of a kind of map which has numerous sign to guide the learning process. ✓

The sign learning emphasizes the role of goal and movement towards that goal. The movement towards that goal depends upon cues and signs which indicate the path leading to that goal. ✓ It has been pointed out that Tolman considered his theory of learning genuinely behaviouristic but at the same time his behaviourism is molar. ✓ Assumption of behaviour being molar enabled Tolman to emphasize the distinctive feature of a behaviour to be learnt. ✓ Then he was also of the firm view that learning is purposive. It is not a process of trial and error but it is directed towards certain goals and therefore, it is purposive. The purposive goal directed behaviour is selective also and utilizes the environmental factors as much as possible. ✓ In the process of learning there are certain intervening variables. Some of these intervening variables are related to cognitive processes and purposes. Tolman has discussed the nature of variables in relation to environment as well as to individual differences. Every intervening variable has been shown to be related to some environmental variable. ✓ Following is the list showing intervening variables and their relationship with environmental variables.

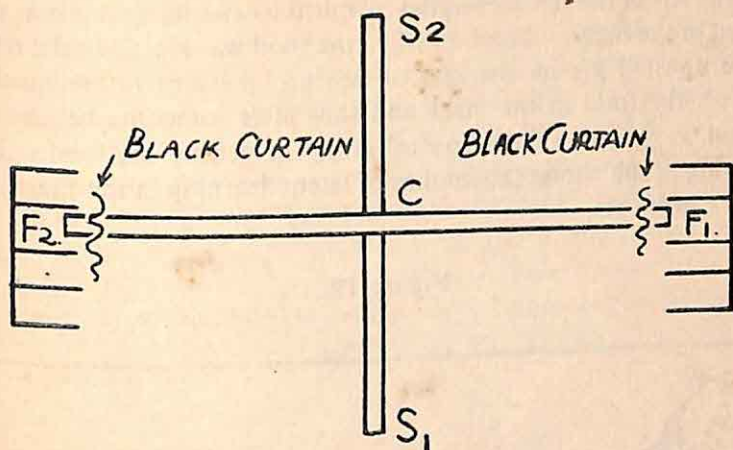
¹² Peel, *The Psychological Basis of Education*, p. 68.

<i>Intervening Variable</i>		<i>Environmental Variable</i>
Demand	correlated with	Maintenance schedule
Appetite	" "	Appropriateness of goal object
Differentiation	" "	Types and modes of stimuli provided
Motor skill	" "	Types of motor response required
Hypotheses	" "	Cumulative nature and number of trials
Biases	" "	Pattern of preceding and succeeding maze units.

In sign learning there are three types of situations which indicate that *reward expectancy*, *place learning* and *latent learning* are involved. Experiments by Tinkle Paugh, Elliot and some others have provided evidence of reward expectancy in sign learning. In the experiment of Tinkle Paugh a monkey was required to discover food placed in one of the two containers. While the food was being placed, monkey was allowed to see. Later on the monkey selected the container which had food in it. In order to show that reward expectancy was involved a lettuce leaf was placed in one of containers instead of a banana which the monkey desired. When the monkey opened the container he did not find the banana and, therefore, he began to search food. This indicates that the monkey was definitely looking for a particular type of food. Another experiment devised by Elliot was performed on the rats. This experiment also provided evidence that animals have expectancy of a particular type of food which is their goal object. In order to reach the goal object they use sign

learning. The following diagram illustrates the phenomenon of reward expectancy:

Figure 18



Maze used to test the relative ease of learning a response which brings a reward or the place at which reward is found.

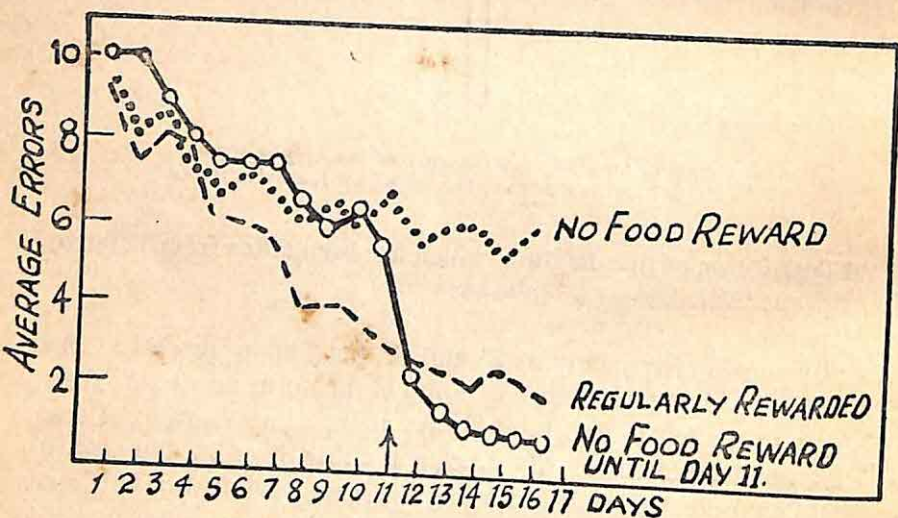
A description of this diagram, which has been taken from Tolman, Ritchi and Kalish runs as follows:

"By starting irregularly at S^1 and S^2 , but finding reward at the same food box each time, one group of rats turns now to the right now to the left to find food always at the same location. These are the place learners. By starting at either S^1 or S^2 , but always finding food as a result of turning the same way (right or left), another group is taught always to make the same response, but to find food at different places, depending upon the starting point. Place learning, under the conditions of the experiment, is found to be easier than response learning".

The various experiments pertaining to reward expectancy and place learning indicate that the learner has some kind of pre-cognition or expectancy of specific goals. In experiments pertaining to place learning it has been observed that the learner somehow 'knows' about the goal. From where the pre-cognition or knowledge comes can only be understood on the basis of sign gestalt theory. The

learner follows a learning situation on the basis of various signs and uses his insight also. As regards latent learning an experiment by Tolman and Honzik has shown that it does take place. For purposes of experiment they had two groups of rats. The control group of rats was fed in the maze everyday. But the experimental group was not fed in the maze. Later on when the food was placed in the maze of the non-fed group, the rats of this group learnt rather quickly to reach the food in the maze and thus after sometime became as efficient as the rats of the control group in getting the food. The following graph shows the nature of latent learning in the maze by the two groups:

Figure 19



Evidence for Latent Learning in the Maze.

Tolman and Honzik have described this graph thus: "With no food reward there is some reduction in errors but not as great a reduction as with regular food reward. Despite the higher error scores prior to the introduction of food, the group rewarded only from the 11th trial immediately begins to do as well as the group had been regularly rewarded. The interpretation is that some learning went on within the first 10 trials which did not show in performance until the food incentive activated it."

As regards motivation, Tolman's position is that it does not lead to learning something new. It simply emphasizes the performance as such. In other words, rewards and punishment merely emphasize and regulate the goal seeking behaviour. Since there is latent learning, Tolman does not accept that motivation is really effective to the extent it is assumed to be. This is a controversial point. But the main contribution of Tolman's sign learning theory has been to raise behaviourism from its lifeless, purposeless, mechanistic level to the level of meaningful and purposive learning activity. According to Peel Tolman gives credit for insightful learning of signs and meanings, distinguishes between learning and performance and relegates the role of need reduction to that of a stimulant, generally activating the learner to greater activity in the problem situation.¹³ Thus Tolman's sign learning theory is a bridge between orthodox behaviourism and the Gestalt theory of learning.

¹³ *The Psychological Basis of Education*, p. 42.

CHAPTER 12

PERSONALITY

DEFINITIONS OF PERSONALITY

Some people understand by the term "personality" the power one has to impress others. If an individual is easily noticed in a gathering, if he is liked and welcomed, it is said that he has a charming personality. If a person feels small and inferior and is most of the time anxious, it is presumed that he has a poor personality. As a matter of fact, there are numerous popular definitions of personality according to the needs and values of the social group or sub-culture in which a particular definition of personality is popular. If in a group aggressiveness is highly valued, people belonging to that group will identify personality, with aggressiveness. When they say that Mr. So-and-So has a poor personality, they mean that he is not aggressive. In other words, this tendency to define personality in terms of a single characteristic liked most in a given group, is indicative of the popular view of personality prevalent in that group or sub-culture.

Kempf's Definition

Efforts have been made to define "personality" scientifically. We shall examine some of the scientific definitions of personality which are given by the Western psychologists. Kempf (1918) has defined personality as "the habitual mode of adjustment which the organism effects between its own egocentric drives and the exigencies of the environment". In this definition it is assumed that man is an organism having egocentric drives. By 'egocentric' drives is probably meant here such forces within the individual as are concerned with his survival and security. In order to safeguard the individual, the egocentric drives try to adjust to the pressing demands of the environment in which the individual lives. In other words, personality is the way in which an individual makes an adjustment. It is a kind of give-and-take between the individual and his environment. What will happen if an individual does not make an adjustment with his environment? Perhaps his egocentric drives will

run wild. He will be considered abnormal and become a problem for society. Thus we see that in the definition of Kempf emphasis has been laid on the "mode of adjustment".

Morton Prince on Personality

The definition by Morton Prince (1924) considers personality as "the sum total of all the biological innate dispositions, impulses, tendencies, appetites and instincts of the individual, and the acquired dispositions and tendencies". In this definition emphasis has been laid on the "sum total" of all the inborn and acquired aspects or personality. While Kempf considered "mode of adjustment" as the main feature of personality, Morton Prince emphasizes the "sum total" aspect of personality. The difference here is obvious. The individual is a totality. He acts and reacts as a whole. The body and the mind are equally united in the making of personality. In other words, the biological and psychological aspects of personality are intimately related. We cannot understand or define personality without paying attention to both at the same time. Thus we find that the definition of personality as given by Morton Prince makes a notable advance over the definition given by Kempf.

F.H. Allport's Definition

It was during the same year, i.e., 1924, of Morton Prince's definition of personality, that two other eminent psychologists made efforts at defining personality. One of them was Floyd H. Allport, the great social psychologists, who defined personality as "the individual's characteristic reaction to social stimuli and the quality of his adaptation to the social features of the environment". In this definition Floyd Allport has introduced a new concept, viz., the individual's characteristic reaction to social stimuli. He has made the social nature of the stimuli a condition in the individual's reaction. He further points out the "social features" of the environment. The question is raised whether reactions to stimuli which are not "social" could be taken into account while understanding personality? We know now a lot about the characteristics of the Unconscious. We also know that each individual has his own inner private world, besides the social world in which he lives. Modern researches in the psychology of perception have shown us that the world is as one would like to see it. All of us have our own "world-view". This "world-view" may be social to the extent its features

are shared by a large number of people living in a social group. Apparently by virtue of being a member of a social group, individuals are bound to develop some kind of social relations. But we cannot give these social relations the same amount of importance in the definition of personality as Floyd Allport seems to give, simply because the potentialities of the individual, his powers of perception, his world-view, are perhaps much more important than the social nature of stimuli or the social features of the environment.

Character and Personality

The other eminent psychologist who defined personality in the year 1924, was John B. Watson. According to Watson, "personality includes not only these (character-conventional) reactions, but also the more individual personal adjustments and capacities as well as their life history". In order to make himself clear, he takes the example of a liar. Watson holds that a liar has no character, but he may have "an exceedingly interesting personality". His example is based on the assumption that character is part of personality. Thus Watson discounts the social and moral aspects of reaction to stimuli while defining personality. There is a difference in character which has been neglected by Watson and which has been well pointed out by Gordon W. Allport. According to Allport, "character is personality evaluated and personality is character devaluated". In other words, while defining personality we should not take into account standards, or codes of moral behaviour. Gordon Allport is against identifying character with some special phase of personality or making it a part of personality as Watson does. He is clearly of the opinion that character is an ethical concept and should not be confused with personality.

The controversy over character being a part of personality or personality itself, has a long history. It is not our intention to go into the history of this problem. But it is in our knowledge that the term "character" has been frequently used as an equivalent of personality, and even today there are people who would like to continue this practice. Nevertheless one fact is brought out here, that we cannot ignore "character" while discussing personality.

Personality as Stimulus—Response

There are other definitions of personality which are in terms of stimulus and response. The definitions which consider personality

as stimulus, i.e., the effect one has on others, emphasize the "personality" of an applicant as it appears to the personal interviewer in selecting employees to fill certain posts. In these selections, "personality" as it appears to the interviewer is of utmost importance. This is right in a way, for the person who is going to give the job must have the final choice. It is not for the employee to choose his employer, but it is the employer who selects his employee. In such a situation, the employer's idea of a good personality carries weight. These definitions are also concerned with the "impressions" which we form in meeting others.

Now, in cases like these where the personality is considered as a stimulus, the obvious difficulty is that we cannot expect the personality of the interviewer to be static and without any response. The fact is that in an interview the interviewer and the person being interviewed both are acting and reacting on each other. The impression which the interviewer is able to form is created not only by the effect which the candidate has on him, but also the response he was able to evoke. That is why there are psychologists who would like to define personality in terms of response only. It is by observation of responses made by an individual that we are able to form an estimate of his personality. By observing behaviour it is possible to say that handsome is who handsome does. Thus defining personality in terms of responses is perhaps more meaningful to a psychologist who is fond of observational methods.

Personality as Mask

But again, there are psychologists who do not accept definitions of personality either as stimulus or as response. They hold that it is the superficial aspect of personality which is observed when we approach personality either as stimulus or as response. In other words, personality as stimulus or as response is nothing but a mask to hide the real feelings and actions. It may be mentioned here that the term "personality" is derived from the word "persona" meaning a mask. In Greek plays, actors put on masks to play the role of the assumed character and thus concealed their real character. During the course of time, the definition of personality as mask was expanded and it included some of the other aspects which were pointed out by Cicero (106-43 B.C.) thus:

1. As one appears to other (but not as one really is);

2. The part someone (e.g., a philosopher) plays in life;
3. An assemblage of personal qualities that fit a man for his work;
4. Distinction and dignity (as in a style of writing).

These new meanings added by Cicero did not solve the problem as to what is the "real personality". The question is asked, "Are we what we appear to be, or is there something behind this appearance?" Thus the fundamental philosophic question of appearance and reality is raised here. It is quite possible that a person who appear indifferent may not be really so. He may have abundant consideration for others within himself and at the same time may appear indifferent. Thus we cannot observe or experience reality on the basis of appearance alone.

Real Personality

According to depth psychologists it is possible to discover the real personality by gaining access to the inner private world of the individual. It is by knowing the inner private world of hopes and fears, beliefs and expectancies that we are able to have a glimpse of real personality. Therefore, it is suggested that:

A man's real personality includes what he wishes to be, how he wishes to appear, how he appears to others and how he appears to himself. It involves his evaluation of his environment, of other people and of himself. It also includes the manner in which these inner patterns are concretized in action. Any attempt to assign a greater reality value to one of these aspects than to another would be purely arbitrary. Personality is intrinsically complex; we can offer no simple formula for reducing its rich variety to dry definition.¹

DETERMINANTS OF PERSONALITY

The determinants of personality may be classified into two categories, the biological and the environmental. The biological determinants have been emphasized so much by a section of psychologists

¹ Stagner, Ross, *Psychology of Personality*, New York; McGraw-Hill Book Company Inc., 1948.

that they are inclined to say that "Human nature begins with Biology". This has led to many myths and superstitions and prejudices. Some people believe that they are superior to others by virtue of being born in a particular caste or race. They have made Biology a scapegoat for many of their anti-social, anti-national, and inhuman beliefs and practices. On the other hand, the environmentalists have attempted to deny the importance of the biological determinants of personality. The fact is that the entire controversy over the problem of "heredity or environment" is meaningless, for the two sets of determinants of personality are equally important. We shall see their relative importance as we discuss them one by one.

Biological Determinants

Taking the biological determinants of personality first, it has to be emphasized that personality is not inherited, but rather that, as Gordon W. Allport would say, "no feature of personality is devoid of hereditary influences". It is mostly due to genes. If the genes are altered the personal characteristics are altered. According to Jennings:

Temperament, mentality, behaviour, personality—these things depend in manifold ways on the genes. It may be safely said that there is no type characteristics in which individuals may differ that has not been found to depend on genes.²

But there are other factors as well along with genes which determine the nature of personality. Allport suggests an embarrassing array of causes that may be drawn upon to explain a given personality. According to him, "the gene theory provides by its flexibility more than enough permutations to account both for family resemblances and for individual distinctiveness."³

Studies of Twins

Studies and investigations in genetics are difficult. For example, if one attempts to verify the Mendelian inheritance, the only proper thing to do is to have selective cross breeding. But this is

² Jennings, H.S. *The Biological Basis of Human Nature*. New York: W.W. Norton & Co., 1930.

³ Allport, Gordon W. *Personality: A Psychological Interpretation*. London; Constable & Co. Ltd., 1937.

impossible in the case of humans. Some efforts have been made on the basis of biological data, but that also is not very helpful. Under the circumstances, two types of studies have been considered to be the most satisfactory. They are comparisons of identical and fraternal twins and of identical twins separated early in life. The advantage is that identical twins (monozygotic) enable the study of two individuals having exactly the same hereditary constitution, because they result from the accidental splitting of a single-fertilized ovum. In the case of fraternal (dizygotic) twins, the development takes place from separated fertilized egg cells. Thus the gene pattern is exactly alike in identical twins, whereas it may differ significantly in fraternal twins.

Holzinger (1929) studied fifty pairs of identical and fifty-two pairs of fraternal twins. He discovered that identical twins consistently differed less than fraternal twins in regard to measures like finger ridges, height, mental age, educational age and emotionality. The examinations of the measures used revealed that "on finger ridges the fraternal differ seven times as much as identicals; on mental age, not quite as much; whereas on a questionnaire test of emotional stability, their variability is only about 1.2 times as great. This suggests that personality is relatively more influenced by environmental variations than other characteristics listed."⁴

In 1936, Kerr studied temperamental differences in twins.⁵ She compared identical and fraternal twins on Rorschach tests. The study revealed that the "identicals were more alike than the like-sex fraternal on all comparisons, the differences were extremely small and apparently not statistically significant".

Heredity Versus Environment

Then we have a study of ten identical twins reared apart. The significance of the study lies in the fact that by separating the identical twins early in life, an effort was made to discover the influence of environment on the development of personality. It is implied here that the choice of identical twins controls heredity and early separation brings in variation in the environment. The only limitation of this study by Schwesinger is the very small number of the

⁴ Stagner, Ross, *Psychology of Personality*. New York: Mc-Graw-Hill Book Company Inc., 1948.

⁵ Kerr, M. "Temperament Differences in Twins," *British Journal of Psychology*, 27, 51-59, 1936,

pairs of identical twins⁶. None-the-less this investigation led to the conclusion that the environment was more influential than heredity in the development of personality.

The above study and some of the following studies throw light on the environmental determinants of personality. The significant thing is that the consideration of one leads to the other. Take for example, the study by Wilson which was devoted to social competence of twins⁷. The measures of social competence were, ability to care for oneself, to carry on normal social relationships and so on. These measures are environmental and are indicative of environmental determinants as well. The findings of this study lead to the conclusion that identical twins were more alike in terms of social competence than fraternal twins.

A study of criminals indicates that, when subjected to strain, individuals of similar heredity will have about the same breaking point and will manifest the same kind of defiant behaviour. Thus it suggests that heredity is more important in determining the nature of personality.

Besides these studies of twins, we have studies conducted on animals. The findings indicate that arousal of fear, aggression and other emotions are probably innate. In this connection it may be stated here that the nature of environment may either exaggerate or control the ease of arousal of emotions like fear.

Role of Autonomous Nervous System

The nature of the biological determinants of personality has been studied by finding out the role of autonomous nervous system. One of the earliest efforts in this direction was made by Kempf. His monograph, published in 1919, indicated that the autonomic nervous system was a basis of personality in general. But how far it was responsible for individual differences Kempf and others at the time did not know.

Real progress was made in this direction when the function of the autonomous nervous system in relation to emotions was studied. It was Jung who prepared a free-association test to find out emotional complexes. He discovered the presence of emotional

⁶ Schwesinger, G.C. *Heredity and Environment*. New York: The Macmillan Company, 1933.

⁷ Wilson, M.T. "Social Competence of Normal and Defective Twins." *American Journal of Orthopsychiatry*, 11,300-304, 1941.

complexes mainly on the basis of slow reaction time, stammering, peculiar responses and other observable behaviour. Smith further studied this problem and found that may, if not all individuals, reacted to complex indicators by a change in the electrical conductivity in the skin⁸. This agreed with other findings relating to the organic accompaniment of emotions.

In a study of reaction tendencies relating to personality, Darrow obtained a number of significant correlations between specific autonomic measures and specific patterns of responses to a test of personality.⁹ The findings indicated that emotionally unstable personalities show wide fluctuation of autonomic functions.

Freeman further explored this finding by experimental frustration.¹⁰ He wanted to test the hypothesis that autonomic functions were related to the individual's ability to "take" frustration and to his rate of recovery. Freeman created experimental frustration by asking the subjects of his study to drink large quantities of water and requiring them to retain the liquid until the bladder pressure became acutely uncomfortable. Fairly consistent differences in ability to bear the pressure was found. On the basis of this study Freeman was led to the conclusion that "there were some indications that those men poorest on emotional control made the least satisfactory records (extreme reaction, slow recovery) on the autonomic measures."

Here it is to be pointed out that the autonomic nervous system has two parts, the sympathetic and the parasympathetic. The sympathetic is called the emergency system and its action results in heightened blood pressure, increased pulse rate, inhibition of digestion, dilation of pupil of eye, etc. The parasympathetic lowers blood pressure, slows the heart and improves digestion. Stagner states that:

children with relatively high blood pressure and low galvanic reflexes were judged to be distractable, somnolent, uncooperative and inhibited; whereas those with high reactivity on the

⁸ Smith, W.W. *Measurement of Emotion*. New York: Brace & Co., 1922.

⁹ Darrow, C.W. "Reaction Tendencies Relating to Personality" (In Lashley, K.S. *Studies in the Dynamics of Behaviour*. Chicago: University of Chicago Press), 1932.

¹⁰ Freeman, G.T. "Toward a Psychiatric Plimsoil Mark: Physiological Recovery Quotients in Experimentally Induced Frustration". *Journal of Psychology*, 8, 247-252, 1933.

galvanic reflex, but relatively low pressure, were rated alert, attentive, cooperative and excitable.

Psychosomatic studies have shown the significance of a specific physiological condition in a total personality pattern. Miller found that inhibited aggression was related to blood pressure for his psychotic patients.¹¹ The present general view of the psychosomatic school seems to be "that the physiological quality of the organism, no less than the inner personal pattern is a variable in these cases." That is why some individuals may have more aggression due to an autonomic reactivity which reinforces such experiences in which an aggressive pattern was acted out.

Discussing the relationship between autonomic functioning and personality, Stagner states:

Persons with marked autonomic reactivity and slow recovery are likely to be unstable, anxious and nervous. They may also be afraid of failure and may be handicapped in developing ego strength, as a result.

He further points out that the lowered autonomic thresholds and weak inhibitory mechanisms may be the basic factors. Studies with more complex and composite measures of physiological function would seem to offer the greatest possibilities for checking hypotheses.

Impact of Glands

The biological determinants of personality are also seen in the functioning of the central nervous system. Studies have suggested that individual differences in central nervous functioning indicate the nature of personality. Besides this, the endocrine glands also have an impact on personality. It is to be noted here that nervous and glandular systems are closely interrelated. Glands may be activated by a neural discharge through proper channels. On the other hand, glandular secretions may have an important influence on the nervous system. These secretions determine the general efficiency. This is very important in relation to personality as we shall presently see.

Now the endocrine glands are of a type whose secretion is absorbed by the blood and carried to all parts of the body. That is why

¹¹ Miller, M.L. "Blood Pressure Findings in Relation to Inhibited Aggression Psychotics." *Psychosomatic Medicine*, 1, 162-172, 1939.

they are known as endocrine glands. And then an endocrine gland secretion is called a hormone. Some of the glands that produce hormones affecting personality, are the pituitary, the thyroid, the parathyroids, the adrenals, the pancreas, and the gonads. We shall not go into the details of their functioning and effects on personality, but confine ourselves to major and significant findings revealing the relationship between the endocrines and personality.

The present position is that abnormal conditions of certain endocrine glands produce distortions of personality. Nervousness and irritability, and over or under activity may result from abnormal conditions of the glands. This suggests that many of these "endocrinological disorders may result in a change in general efficiency of bodily function, which in turn gives a feeling of frustration or insecurity, because the usual 'balance has been disturbed."

But there is nothing specific about it in the sense that personality qualities may result from a variety of glandular states. In 1935 Freeman studied 1,400 psychotics. His findings indicated that there was no consistent parallel between mental pattern and glandular make-up. In other words, this study indicates that there is no direct relationship between the endocrines and personality. But the question is still open and studies are needed to provide further evidence in regard to this.

Attempts have been made to study personality traits in relation to acidity and alkalinity of urine, saliva and blood. The general findings seem to suggest that persons with excitable tendencies average on the alkaline side while those with depression and mental confusion fall on the acidic side. Hamilton and Shock discovered that an excitable individual tends to make himself more alkaline (1936). In a state of excitement he breathes more rapidly and deeply thus lowering the carbon-dioxide which results in an increased alkaline reaction. Hamilton and Shock are of the opinion that "the psychological characteristic is basic and the biochemical, a product." Once again it is to be emphasized that personality has both the biological and psychological components.

CULTURE AND PERSONALITY

In our discussion of the determinants of personality it was brought out that different genetic tenements have different potentialities in

terms of reaction time, frustration, tolerance, etc. Each individual also has his own pace of growth and development, and his own rhythm of constitutional competence.

Constitutional Features and Culture

Some of the constitutional features of the individual are striking at a given time. Take for example a constitutional feature like sex. At a given age, an individual of a given sex behaves in a manner which finds approval from the members of his or her society. We have also in our observation, that physiological features like stature, colour of the skin, and the shape and cut of the face have their own cultural value. In Chinese culture, the eyes of a woman may not be compared with that of a deer, as we do in our culture. There are other similes conveying the standards of physical beauty in their culture. Likewise other cultures have their own physical or bodily standards of beauty. In some cultures, tall men are appreciated, in others pigmies may be considered charming. If we try to study the standards of physical beauty in a given society, we may also discover a corresponding relationship with the "personality type" prevalent in that particular society. A physically handicapped person may develop some kind of determination in order to overcome that physical deficiency. But generally an individual accepts his physical limitations and excludes from his life certain types of vocational and social activities. For example, a blind man cannot be engaged as a driver or as a watchman. He is unfit for jobs requiring the sense of sight. Socially a blind person is unable to move freely or to enjoy a theatrical performance. But again he may try to win social recognition and approval by developing a keen sense of hearing and become a musician. It is in our experience that most of the blind men and women have a wonderful memory, and many other qualities of mind which normal individuals usually do not possess. This does not mean that a physically handicapped person has no resentment against his disability. He has it in a concealed form and it becomes an ingredient of his total personality. Here we see the unique interaction between the constitutional and environmental factors.

What is Culture?

Now if we try to understand this interaction between the constitutional and environmental factors, we are led to the problem of

culture and personality. And the natural question is, what is culture? Philosophers, psychologists, sociologists, anthropologists and others have defined culture variously. The difference in definition lies in degree of emphasis laid on various aspects of needs and expectations prevalent in a given group. In other words, the nature of group membership, functions or roles necessary to group life and situational factors create and develop needs and expectancies which are basic ingredients of a culture. It is with a view to satisfying his basic physical and psychological needs that an individual learns the group behaviour, the style of social living. Here it may be mentioned that at present there is some difference of opinion with regard to the nature of needs. Some scholars are of the opinion that there are no basic needs, but basic values. In other words, individuals are motivated not by needs but by values, attached to certain goals. This controversy is academic and is indicative of the difference in approach to the study of the individual and his culture. Those who consider needs as the basis of motivation emphasize the animal nature of man. According to them needs like hunger and sex are basic ingredients of culture. But there are others who think that values symbolising love and affection, friendship and co-operation, are the main motives which lead men to do what they do. There is much truth in this viewpoint. But we shall leave this controversy here and proceed with the consideration of the nature of culture and its relationship with personality.

Group Membership

It was pointed out earlier that one of the environmental determinants of personality which is a component of culture, is the group membership. In an organized group, the members tend to have certain common personality traits. The motivational pattern, the social stimuli and the beliefs and expectancies prevalent in an organized group, manifest certain personality traits which are found predominantly in that group. Now in order to understand how an individual born into a group comes to take on the ideas, attitudes and habits that are necessary for membership in that group, we have to acquaint ourselves with the categories of basic training given to infants and children to enable them to be effective members of the group.

Regularity of Habit

One of the most important categories of the basic child training

is the extent and degree to which parents and other surrogates insist on regularity of habit in such matters as feeding, sleeping, elimination, sexuality and other related drives. In a given social organisation, it has to be seen how rigid and regular is the child training in terms of nursing, weaning, habit of elimination, walking, etc. We observe a wide variation in these matters when we study various cultures. In some societies child training is rigid, in others it is mild. At first sight these differences in child training may seem unimportant and trivial. But recent researches in the development of personality have led to the conclusion that the degree of rigidity of basic habits and the kind and intensity of punishment used to enforce culturally approved habits and attitudes are of utmost importance. Without a knowledge of the degree of rigidity in child training practised in a culture, it is rather impossible to understand the kind of personality which is typical of that culture.

Rigidity and Frustration

The degree of rigidity in child training produces the corresponding degree of frustration. If a child is denied love and subjected to severe teasing, he experiences great frustration and in order to overcome that frustration he expresses anger and aggression. In other words, for the young child the most natural and fundamental reaction to frustration is aggression. If it happens to be the mother who enforces the denial, she will be the most obvious object on which to direct one's hostility. If it is a brother or sister, the antagonism may take some form of rivalry. If it is the father who imposes his will, he may become the individual toward whom the mounting aggression may be directed. Further, in due course of time, the child may learn to direct his aggression toward other individuals, symbols or objects. It has been observed that children direct their aggression toward the members of the out-group. "Those who belong to the out-group are inferior". This the child learns from his parents and neighbours. Thus he begins to direct his hostility toward the individuals of the out-group.

It is on the basis of such early and culturally approved transference of aggression that hostility to those of other classes, political faiths, religions and nations is developed. Such antagonisms flower in our adult world in various forms of competition and conflict. But it must not be forgotten that the roots of such aggression

lie in the earliest frustrations of the child in the home or in some other primary group.¹²

Love and Sympathy

The third category of basic child training is that of love and sympathy. The relationship between the mother and the infant, the father and the child, and among siblings and friends is the foundation of love and sympathy in the growing child. The right attitude of the mother towards the infant, her affection for the little baby, and the feeling of security given to the little one, are important for the socialization of the child. It is generally believed that the nursing is pleasant and enjoyable for both infant and mother. That is why perhaps most of the societies, primitive or civilized, attach a high value to the newborn. It is out of the deep relationship of parent and child, that human values like kindness, sympathy and cooperation grow. Without love and sympathy and co-operation, the human society cannot progress. That is why every culture provides for its preservation by making the process of socialization an experience in the growth of love and sympathy.

Social Controls and Moral Sanctions

The interdependence of culture and personality is further reinforced by social controls and moral sanctions exercised by the group. During the process of socialization these social controls and moral sanctions are imposed on the growing child. The adult techniques of dealing with children's behaviour are usually in consonance with the social controls and moral sanctions prevalent in the culture. Thus at first the growing child experiences these sanctions and controls in the form of verbal or corporal punishment. Later on, as he grows, some of the social controls and moral sanctions become a part of his own ideas, attitudes and value-system.

Indoctrination of new Members

It is rather important that we take into account the method employed by a society to indoctrinate its new members. The right moral values which a society is able to create within its new members are real cultural assets. If a culture has a right set of values

¹² Young, Kimball, *A Handbook of Social Psychology*, 1948. London: Kegan Paul, Trench, Trubner and Co. Ltd.

operating in the lives of its members, it becomes a source of strength in personality development. Thus we see that social controls and moral sanctions are important components of culture which go into making the kind of personality which that culture desires.

Social Adjustment

Another category of basic training which the group provides is concerned with the techniques of social adjustment. How the individual can have the best possible social relationships, how he can function to the best of his ability so that he becomes helpful to the group, are the important problems for every culture. Thus every culture tries to develop a kind of "social character", a personality in harmonious blending with the social environment. Every member of the group is expected to be productive, so that, the total wealth of the group increases for the benefit of its members. Now, it is true that in some societies there are socially approved ways of exploitation. It may be practised in the form of caste system and other social barriers. The untouchables in India are an example in this connection. None the less, it is an important point to bear in mind that every society has its own pattern of living. It requires its members to contribute to its economic, political, aesthetic and moral development according to their ability. Thus in this process of contribution toward the betterment of the society, the personality of the individual also acquires such ingredients as make him or her worthy of social approval and recognition. It is by serving others that one serves himself. The quality of this service to others determines the quality of service one will receive. We shall discuss this aspect when we come to the consideration of the mature personality.

Sense of Significance

Allied with this learning of social skills is the development of a sense of significance. The individual would like to feel that he is liked by others and that people value him as an individual. It is through this feeling of significance that the individual develops emotional security. In the development of personality emotional security contributes a lot. The cultural environment provides opportunities for gaining emotional security. Such opportunities are inherent in these cultural activities which are elevating and

"recreate" the individual. This is possible when a given group has a well-defined system of rights and responsibilities. Every one takes care of his duties and responsibilities and thus is entitled to certain rights given by the group membership. All this is important in terms of personality development, for it enables the individual to have a sense of significance and a conscience developed out of an understanding of rights and responsibilities.

Maladjustment

And finally we should consider the factors which lead to maladjustment of personality. Obviously, if the individual fails to satisfy his psychological needs, he is unable to get along with others. He becomes maladjusted and neurotic. In every culture there is a standard of normal behaviour. If the individual fails in terms of cultural acceptances and expectancies his behaviour is liable to be abnormal. Therefore it is necessary that the process of group membership should be considered one of the basic aspects of culture and personality. Here this statement of Edward Sapir seems significant:

All cultural behaviour is patterned. This is merely a way of saying that many things that an individual does and thinks and feels may be looked upon not merely from the standpoint of the forms of behaviour that are proper to himself as a biological organism but from the standpoint of a generalized mode of conduct that is imputed to society rather than to the individual though the personal genesis of conduct is precisely the same nature, whether we choose to call the conduct 'individual' or 'social'. It is impossible to say what an individual is doing unless we have tacitly accepted the essentially arbitrary modes of interpretation that social tradition is constantly suggesting to us from the very moment of our birth.¹³

So far, the prevasive and all-embracing quality of culture in relation to personality has been described. But there are certain limitations which cannot be overcome by culture. For example, the climatic conditions, or other geographical conditions, have their own bearing upon personality. Questions like these are asked:

¹³ Sapir, Edward. Quoted by Kluckohn, Murrery and Schneider in *Nature, Culture and Personality*.

Does living in a constantly rainy climate tend to make people glum and passive? Living in a sunny, arid country tend to make them cheerful and lively? What are the differential effects of dwelling in a walled-in mountain valley, on a flat plain, or upon a high plateau?

Answers to these questions can be only guessed for we need studies to determine the effects of climate on personality.

Then there is another dimension which is not culturally determined. For example, the size of a social group, the number of its members, its age and sex ratio, are not entirely culturally determined, though sometimes interaction between the technological level of the culture and the physical conditions of environment is responsible to an appreciable extent.

THE PSYCHO-ANALYTICAL APPROACH

Id, Super-Ego and Ego

Psycho-analysis starts on the assumption that the psyche or mental life has two terminal points, one, the bodily organism with its brain and nervous system, and the other, consciousness. Freud states that everything that exists between these two terminal points is unknown to us and as far as we know, "there is no direct relation between them." Another assumption which Freud makes is that the mental life is the function of an apparatus to which is ascribed the characteristics of being extended in space and of being made of several portions. One of the portions of this psychical apparatus is *id*.

It contains everything that is inherited, that is present at birth, that is fixed in the constitution—above all, therefore, the instincts which originate in the somatic organization and which find their first mental expression in *id* in forms unknown to us.¹⁴

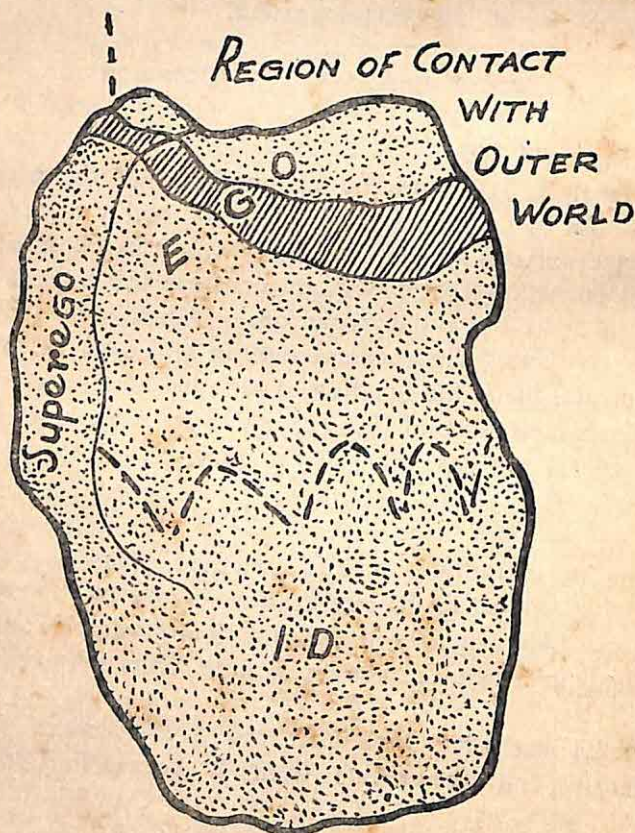
It is to be mentioned here, that the term 'instinct' is more comprehensive, and represents what is known in German as *Trieb*.

¹⁴ Freud, Sigmund. *An Outline of Psycho-Analysis*. London: The Hogarth Press, 1949, p. 2.

Another portion of the psychical apparatus is the *ego*. It is not entirely a separate portion or region, but a part of the *id* which has developed under the influence of the surrounding environment or external world surrounding us. Freud says,

"From what was originally a cortical layer, provided with organs for receiving stimuli and with apparatus for protection against excessive stimulation, a special organization has arisen which henceforward acts as an intermediary between the *id* and the external world."¹⁵

Figure 20



The Psychoanalytic View of Personality.

¹⁵ *Ibid.*

And then, we have the concept of *super-ego*. According to Freud, an individual's *super-ego* develops during the long period of childhood. It represents the moral attitudes, ideals and other ethical values taught to the individual during the period of socialization. In other words, the *super-ego* is what we generally understand as conscience. Freud points out that "in spite of their fundamental difference, the *id* and the *super-ego* have one thing in common: they both represent the influences of the past (the *id* the influence of heredity, the *super-ego* essentially the influence of what is taken over from other people), whereas the *ego* is principally determined by the individual's own experience...."¹⁶

One of the most fundamental concepts in psycho-analysis is that of the *libido*. It is the vital energy with one source that is 'sexual' in nature. Here the term 'sexual' stands for all kinds of pleasure-seeking activities, and all varieties of love, such as self-love, love of parents and love of man-kind. Along with this broad and comprehensive meaning, the term 'sexual' is also employed for its narrow meaning. But it is important to note that the strength of the *libido*, its nature and the channel into which it flows are the most important factors in determining personality. Another significant fact about the *libido* is that it is present from birth and determines the nature of behaviour. It is dynamic and constantly flowing and moving. "It may flow inward to the self (narcissism) or may be directed outward to other individuals or things (object-love). It may be directed to unreal phantasies (introversion). The *libido* may adhere to infantile love-objects (fixation) or may flow backward to them (regression). It may become restrained or dammed up (repression) or may be directed into altruistic and social channels (sublimation)".¹⁷ It is to be mentioned here that in his earlier writings Freud considered the self-preservative or ego-impulses as opposed to the *libido*. But later on he came to the conclusion that the self-preservative instincts were not opposed to the *libido*, for they arose from self-love and hence were libidinal in nature. In his later writings, specially in *An Outline of Psycho-Analysis*, Freud has grouped the instincts into two categories. He says,

¹⁶ *Ibid.*, p. 4.

¹⁷ Shaffer, L.F. *The Psychology of Adjustment*. Boston: Houghton Mifflin Company, 1936, p. 395.

After long doubts and vacillations we have decided to assume the existence of only two basic instincts, *Eros* and the destructive instinct.... The aim of the first of these basic instincts is to establish even greater unities and to preserve them thus—in short, to bind together; the aim of the second, on the contrary, is to undo connections and so to destroy things. We may suppose that the final aim of the destructive instinct is to reduce living things to an inorganic state. For this reason we also call it the *death instinct*.¹⁸

The term *libido* is thus another name for *Eros*.

The most important concept in psycho-analysis is that of the *unconscious*. Freud thought that the unconscious was the largest part of the mind. And then there were the *conscious* and the *pre-conscious* realms of the mind. The conscious realm of the mind is that of which the individual is aware at the time. The conscious part of the mind is small in comparison to the *pre-conscious* and the *unconscious*. It is constantly shifting and changing and gains its consciousness from the external world for the time. Freud remarks:

There is no need to characterise what we call *conscious*; it is the same as the consciousness of philosophers and of everyday opinion. Everything else that is mental is in our view *unconscious*. We are soon led to make an important division in this *unconscious*. Some processes become conscious easily; they may then cease to be conscious, but can become conscious once more without any trouble.... What is conscious is conscious only for a moment.¹⁹

Further, Freud points out that in the conscious perception or our intellectual processes we may have some perceptions which persist and others pass in a flash. In this manner Freud introduces the concept of the *pre-conscious*, and remarks, "Everything unconscious that behaves in this way, that can easily exchange the unconscious condition for the conscious one, is therefore better described as 'capable of entering consciousness', or as *pre-conscious*." In other words, the *pre-conscious* is that part of the mind

¹⁸ Freud, S. *An Outline of Psycho-Analysis*, p. 6.

¹⁹ *Ibid.*, p. 19.

the contents of which are easily recalled, or brought into consciousness. The *pre-conscious* could be considered as the seat of ordinary memory and is more like the conscious than the unconscious.

The *unconscious*, as mentioned earlier, occupies the major portion of the mind. It is always engaged in unconscious mental processes of which the individual is unaware, but at the same time his behaviour is being influenced by these unconscious mental processes. Thus the *unconscious* is 'unconscious' so far as the individual is concerned, but by itself it is dynamic and fully conscious. Another characteristic of the *unconscious* is that it is predominantly emotional and full of such desires as are repressed from the consciousness and that which never became conscious. The latter type of the content of the *unconscious* has been termed by Jung as the collective or racial unconscious.

Now, it will be helpful if the Freudian approach to mind or personality is described after the model of two families living upon different floors of the same house. The family on the first floor, which is the abode of the conscious self, respectable, orderly, law-abiding folk whose object is to keep themselves to themselves and to stand well with the neighbours. The ground floor, the unconscious, is occupied by a much larger family of disorderly and disreputable type. The members of this family are uncultured and unfit for society. Many of them once belonged to the first floor family, but now were obliged to live on the ground floor as they had become unfit for cultured social life. The family on the ground floor is utterly selfish. The members of this family would like to live on the first floor in order to be considered respectable and to receive recognition. This attempt on the part of the ground floor people is resented and disapproved by the first floor people. Therefore they engage a kind of watchman to guard the entrance to the first floor. This watchman is known as *censor* in the Freudian terminology. The function of the censor is to prevent the undesirable elements of the *unconscious* from entry into the conscious. But he does not succeed all the time. Some times, the unconscious desires succeed in coming to the conscious. In such cases, they have to be purified and made respectable by the process of *sublimation*. Thus, for example, an unconscious desire to deprive someone of his valued possession may be sublimated and appear in the consciousness as a sudden aversion for something undesirable,

Another aspect of the unconscious desires, which is important to note, is that due to constant repression by the censor their expression is hindered and thus the unconscious desires are forced to turn back upon themselves and "like a river which has been dammed, form a kind of swamp in the unconscious which is called a complex." The complex, so formed, is responsible for many kinds of mental and nervous diseases, and in extreme cases leads to behaviour disorders.

Joad²⁰ points out that Freud often writes as if all the contents of the consciousness at any given time were composed of more or less sublimated forms of the unconscious desires.

This applied not only to the emotional and passional elements of our nature, our desires, wishes, aversions and hopes, but also to our beliefs and thoughts. A man's tastes in arts or beliefs about religion are on this view, just as much determined by the trends of his unconscious self as his taste in female beauty or his beliefs about his own character.²¹

Against the background of these psycho-analytical concepts let us consider the development of personality. The psycho-analytical approach suggests three stages of personality development. The first stage is comprised of the period from birth to the age of five or six years. The second stage includes the period from infancy to puberty. The third stage is after puberty. These broad divisions of human life in terms of time are based on a developmental process which is intimately connected with the libidinal localization and attachment to objects. During the first stage of infancy, the infants *libido* is localized in three different regions of the body. The first region of the body in which the *libido* is localized is the mouth. The infant derives libidinal satisfaction at first in nursing and thumb-sucking and then later on in biting and chewing. This is known as *oral-erotic* stage in terms of libidinal localization. There are destructive impulses of infants and these are related to the later oral ("oral-sadistic") phase.

²⁰ C. E. M. Joad, *Guide to Modern Thought*, 1941.

²¹ *Ibid.*, p. 245.

Then follows the *anal-erotic* stage in which the eliminative function and organ become the centre of satisfaction. . . . The anal stage is displaced by the early genital stage, when the pleasure-giving possibilities of the sex organs are discovered and utilized²².

This is the final stage of localization of the *libido*. There are conditions in adult life which are supposed to be due to "fixation at or regression to one or another of the earlier infantile stages." For example, it is suggested that "cruelty is due to regression to the late oral stage of biting-pleasure, avarice and obstinacy to the late anal phase of pleasure in retention". Now, such a suggestion is universal in character which is challenged by some anthropologists, sociologists and psychologists. We have seen that personality is deeply embedded in culture. We also know that different cultures have different processes of child training. There is gradual weaning in some cultures and it is rigid in some other cultures. Therefore, we are unable to accept the universal character of such suggestions.

Another important matter is the "finding of objects for the attachment of the *libido*." Just as in the case of libidinal localization we saw three stages, so it is in the object-finding process. Here the first stage is known as *auto-erotic*. During this stage, the *libido* is attached to no object, but is gratified by physical pleasures. As the *ego* comes into its own the *libido* becomes attached to it and this leads to the second stage which is termed as the stage of self-love or narcissism, named after the legend of Narcissus, who fell in love with his own image. It is the contention of the Freudians that narcissism gives strength to the developing Ego. It is suggested by them that narcissism is desirable to some extent. But if an individual is fixated at this narcissistic stage, he develops an ego-centric character. He becomes interested only in himself and in no other. Here we have a narrow view of self. It is not the self with a capital 'S', but a self devoid of all spiritual content. That is why there is mention of narcissism. Our philosophy tells us to see the Great Self (*Paramatman*) in all *selves*. If we consider this narcissistic stage from another angle, we can say that it simply means a self-centered, selfish individual, who is unable to go beyond the confines of his physical self. There is no doubt, that there are people who are interested in none except their physical selves.

²² Shaffer, L. F. Op. cit., p. 399.

The third stage of object-finding by the *libido* is called the *object-choice*. During this stage the *libido* tries to attach itself to an external love-object being, generally the parents. This happens almost at the same time when the genital stage of libido localization takes place. Thus ground is laid for the problem known as the *Oedipus Complex*.

The *Oedipus Complex* is named after the myth of the Theban king who killed his father and married his mother without knowledge of what he was doing. Thus it represents a son's unconscious desire for his mother. Here full emphasis should be laid on the 'unconscious' aspect of the *Oedipus Complex*. It is suggested that the *Oedipus Complex* is innate and a kind of "heritage of the racial unconscious" handed down to the son. Thus it is claimed by the Freudians that the *Oedipus Complex* is inborn and hence found in every culture. Recently it has been felt that this is perhaps untrue, for much of what is considered as innate in the *Oedipus Complex* may be the product of cultural conditioning. The Neo-Freudians say, "Both we and the Freudians look for the roots of neurosis in childhood. The Freudians start with rigid premises for example that every man has gone through an *Oedipus Complex* We say that may have been true but we make no universal assumptions about all patients. Freudians do not give enough attention to an individual's more generalized need for emotional security and to the effects of cultural interplay."

There have been people like Adler, Jung and others who disagreed with Freud. Alfred Adler, the first to differ with Freud, did not accept the overriding importance of infantile sexuality. He stressed the viewpoint that it is the inferiority feeling which we all have that is of more significance, for it leads us to strive for something which we don't have. Jung, another disciple of Freud, emphasized the "collective unconscious" composed of man's "racial memories" as a "driving elemental force". In recent times, Karen Horney laid great emphasis on cultural factors in the development of personality, and Harry Stack Sullivan pointed out that the individual personality should be considered as a product of interpersonal relations. Thus we see that the Freudian approach to personality has been criticized by the two great disciples of Freud as well as by others who call themselves the Neo-Freudians.

THE MATURE PERSONALITY

Allport suggests three characteristics of a mature personality. The first characteristic of a mature personality is that it has a definite purpose in life. Its goals are clear. The person has no doubt about the things he has to do. For him work is worship. Thus devoted to his duty, the individual finds that he is not affected by pleasure and pain, or defeat and victory. He attains a balance of mind which helps him in going towards his goals, "These goals represent *an extension of the self* which may be said to be the first requirement for maturity in personality."²³ In other words, the realization of the cherished goals is in a way realization of the self. Now here it has been assumed that the goals which a person fixes become a part of himself. There is so much identification between the individual and his goals that they become one. That is why Allport suggests that *an extension of self* takes place.

There is another characteristic of a mature personality which Allport terms as *self-objectification*. This is the "peculiar detachment of the mature person." An individual who is able to see himself as others see him, to evaluate his abilities in terms of his performances, to know his weaknesses, for therein lies his strength, can be considered mature. In other words, the capacity for self-objectification provides that kind of *insight* which enables a person to look into the matter with a sense of reality. When this happens, the individual is not worried over the ups and downs and he is able to attain that balance of mind which preserves his sense of humour. He is able to laugh even when he is in a tight corner. Thus the maturity in personality is indicated by the amount of self-objectification, insight and the sense of humour an individual has.

The third characteristic of a mature personality is that it has a *unifying philosophy of life*. This characteristic is the natural result of the previous two characteristics. When the individual has an extension of self and self-objectification, he experiences a kind of unity prevailing everywhere. The unity of mankind, the ideal of world brotherhood, and the essential unity of all religious become meaningful and living entities to a person with a unifying philosophy of life. It is not possible for us to go into the various

²³ Allport, Gordon W. *Personality: A Psychological Interpretation*. London: Constable & Co., 1937, p. 213.

details of a unifying philosophy of life, but it has to be mentioned that it is value-oriented and that it approaches religion as a "search for a value underlying *all* things." We cannot fail to observe here that the unifying philosophy of life is altruistic and essentially for the welfare of mankind.

Now these three characteristics: the extension of self, the self-objectification and the unifying philosophy of life, are attained not in a day. The developing personality acquires these characteristics in a harmonious relationship with parents and others around him. Lawrence K. Frank suggests three major segments of this ongoing process of personality development:²⁴

One is that the child under parental guidance—and this apparently takes place in all cultures—must organize his internal functioning environment, surrendering some of his own physiological autonomy and accepting whatever pattern and regulation of his organic functioning his parents believe to be necessary in order to make of him an acceptable member of society. The infant encounters these patterns in feeding, weaning, toilet training, sleeping and other physiological activities. Gradually he ceases to be governed by hunger and becomes responsive to appetite, which is the desire for the kind of food his parents think he ought to eat at intervals at which they believe he ought to be fed. . . . He also must give up automatic evacuation of urine and feces he must learn to control and retain, to go to the appropriate place, and to develop a series of habits of cleanliness and sanitation.²⁵

Thus a basic pattern of conduct directed to the goals and standards set up by the culture and transmitted by the parents to the child is created. Herein we can find the seeds of self-extension and self-objectification.

The second major segment of personality development important from the point of view of maturity in personality is that the child should be able to learn to transform his naive and impulsive behaviour into orderly and purposeful conduct. In this process he has

²⁴ Frank, L.K. "Working Toward Healthy Personality" in *Problems of Infancy and Childhood*. New York: Josiah Macy, Jr. Foundation, 1950.

²⁵ *Ibid.*, p. 14.

to learn many of the "don'ts" and "dos". These "don'ts" and "dos" are based on a value-system cherished by his culture. The child is expected to learn the things he has to do. Thus we find that the child has to control himself many a time in order to follow the style of social living. He learns the

prescribed patterns of action, the purposive conduct we call cleanliness, manners, etiquette; masculine or feminine roles and all the other ritualistic stereotyped forms which parents believe to be necessary.²⁶

The third major segment of personality development relates to learning to live in a symbolic cultural world of meanings and values. He is required to learn the traditional concepts and meanings for organizing and interpreting his experiences. He is expected to develop language, both overt and covert, building up the assumptions and a value-system which make life reasonable and meaningful as interpreted and emphasized by the parents, whose ideas are derived from religion, philosophy and ethics. Herein we find the stage basis for developing a unifying philosophy of life. It is during this of personality development that an individual is able to have a 'world-view'.

According to Linton and others of his point of view, the development of personality is culturally related. They hold that maturity of personality in one culture may not essentially be the same in another culture. But there are certain universals which have to be in every civilized culture. Take for example, love, truth and friendliness. It is said, "Love thy neighbour as thyself". We all know this, but are unable to practise it. The degree to which we are able to practise it may be indicative of the maturity in our personality.

CHAPTER 13

PROJECTIVE TECHNIQUES

As the study of human personality has revealed that there is a dynamic organisation within the individual, it is not possible for a psychologist to discover the inner pattern by a projective test which is constructed on the lines of an intelligence test or some other behavioural test. It was, therefore, a problem to the psychologists to discover a method or a technique by which they could find out the real nature of a personality. The idea of a projective technique came to Lawrence K. Frank perhaps for the first time and he wrote about it in 1939 in the journal of psychology. He pointed out that the idea of a projective method for the study of personality was based upon the indirect method used by physicists to discover the internal pattern of organisation and composition of an element without disintegrating it. Thus Lawrence K. Frank suggested the term 'projective method' for personality study and indicated that "the dynamic conception of personality as a process of organizing experience and structuralizing life space in a field, leads to the problem of how we can reveal the way an individual personality organizes experience...." In other words, he was concerned with an individual's "*private world* of meanings, significances, patterns and feelings".

Nature of Projection

The term 'projective method' is based upon the theory that an individual projects his own ideas and feelings to something outside himself unconsciously. According to Freud projection is a kind of defence mechanism. "A person is *projecting* when he ascribes to another person a trait or desire of his own that would be painful for his ego to admit". Since the act of projecting is unconscious, it is not recognized as a projection by the person himself. In the Freudian sense, projection is a false perception. But there are other meanings of *projection*. Often projection and introjection are contrasted. *Introjection* "is a mode of embracing in the personality elements that are admired in other persons". "*Projection* is a mode of throwing off from the personality on to other persons

or objects elements that one holds in low regards”.

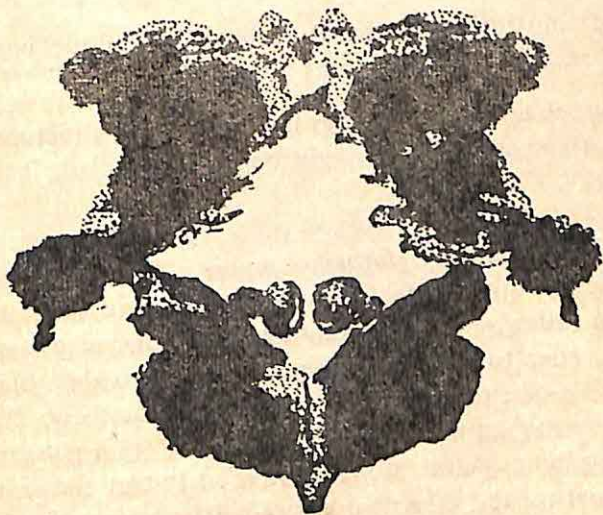
The most commonly used definition of projection is that “projection is the reference of impulses, thoughts, feelings, and wishes originating in the person himself to persons and objects in the outside world”. “Projection, in short, is taking one’s own thoughts and impulses and attributing them to another person”. Example of the person who complains that people are unkind to him. The truth is that he is unkind to others and finds it difficult to admit to himself and so attributes his unkindness to others.

Since the process of projection is unconscious, it is not possible for anyone to know its real nature outright. The motives, anxieties and conflicts have to be studied—The Rorschach Technique is one of the projective techniques which is used to diagnose the unconscious aspects of personality.

The Rorschach Technique

A Swiss psychiatrist, Hermann Rorschach, invented this technique and published a monograph called *Psycho Diagnostik* in 1921.

Figure 21



An Inkblot

Unfortunately he died after a year in 1922. Rorschach based his construction of this test on the assumption that the stimulus

presented should be ambiguous. In other words, a good projective technique is that which presents an ambiguous stimulus situation to which a subject can respond in many ways. The typical characteristic of responses to an ambiguous stimulus situation is its personal or subjective quality. In other words, response evoked by a projective technique is mostly concerned with the inner private world of the individual. The Rorschach Technique is very useful from this point of view. During the world war II this technique was widely used for the diagnosis of mental and emotional personality problems.

Rorschach while preparing this test tried to develop ambiguous stimulus situations by means of quasi-symmetrical ink-blots (see Figure 21 on p. 235). These ink-blots provide unstructural or meaningless situations and permit every subject to project his inner private world. By a number of experiments Rorschach finally selected a set of ten ink-blots. Five ink-blots were coloured and the remaining five grey and black. Moreover, these ink-blot cards have objective characteristics such as symmetry, colour, shading, etc. Thus the Rorschach Technique can be an objective method for the study of personality.

Administration

The administration of the Rorschach Technique begins with a brief and standard instruction as given below:

"People see all sorts of things in these ink-blot pictures; now tell me what you see, what it might be for you, what it makes you think of."

This is known as the *performance proper*. During the performance proper the ten ink-blot pictures are presented to the subject in the prescribed order and he is encouraged to make responses to them. The tester tries to make the subject at ease so that there may be as much spontaneity as possible. Secondly there is no kind of clues given to the subject which may lead him to give a pattern response. Thus the tester remains 'non directive'. But at the same time he tries to elicit all the information needed for scoring.

The *performance proper* is followed by the common practice of *inquiry*. During inquiry the examiner is non directive and asks the subject questions as are likely to help in the scoring. In other words, the period of inquiry is utilized to fill in the gaps if any which were

noticed during the performance proper. It may be pointed out here that the inquiry can be successful only to the extent the examiner is able to put non directive questions. The ability to ask effective non directive questions depends upon a long practice and experience. A good examiner while administering the Rorschach test tries his best to make the subject relaxed and to convince him of his sincerity in regard to his welfare. At no stage he tries to pin him down on a point or to challenge his statements.

Inquiry is followed by *alternative question period*. During this period the examiner may put somewhat direct questions to the subject so that scoring difficulties are resolved. In other words, the alternative question period is utilized to specify the nature of responses. The final phase of testing is known as *testing the limits*. During this period the tester tries "to explore directly all important possible ways of responding to the stimulus material, which the subject has left unused, in order to discover whether his failure in this regard is because of reluctance or unwillingness, or whether it is because of inability".¹ In other words, testing the limits is the final attempt by the examiner to complete the inquiry and it is believed that skilful testing of the limits is extremely important for diagnosis of a personality by means of the Rorschach test.

Scoring and Interpretation

The results are scored on the basis of the three main criteria :

- (1) Does the subject react to the whole ink-blot, to a part or to a small detail?
- (2) Do the responses of the subject involve movement, form, colour or the three combined and is the form clear or blurred?
- (3) Does the subject see human or animal figures or mainly lifeless objects?

It is not possible for us to go into the full details of scoring and interpretation of the Rorschach test. But it is desirable here to mention a few of the typical features of the interpretation. For example colour responses (C) is related to an individual's impulsiveness. It has been observed that persons with an out going emotional

¹ Bruno Clopper.

tendency are prone to give many colour responses. According to Piotrowski "colour responses always indicate a desire for an exchange of pleasure or pain with some other person." This view is not accepted by all the Rorschach psychologists and it may be pointed out here that there is still substantial disagreement among them pertaining to certain types of colour responses.

The other category in the interpretation of the Rorschach responses is related to the 'whole' (W) and 'large detail' (D). In other words, it is seen whether a subject has given his interpretation for the whole ink-blot or to a part of it and pointing out its detail. It has been observed that when a subject has the ability to solve his problems in a comprehensive manner, he is liable to give the interpretation of a number of Rorschach cards utilizing the whole aspects of them. In other words, the 'whole' responses indicate high mental ability. According to Cronbach the whole responses are "associated with intellectual ambition, interest in systematically organised ideas and theoretical matters". As regards the use of large details and responses it has been pointed out that such large detail responses are connected with a "common sense" approach towards the problems of life. Such subjects as give large details are likely to be practical in their affairs.

Movement (M) is another important category in the interpretation of Rorschach responses. It has been noted by Rorschach himself that movement response indicates creative ability. In other words, a subject who observes movement in an ink-blot card has imagination and ability to be creative. It may be noted here that the creative ability is indicative of a person's richness in inner life. In other words he is more satisfied from within and is in a position to be imaginative and creative in the interpretation of things around him.

Besides the above categories of interpretation there is another important category which is known as form (F). When a subject emphasizes the shape, outline or form of an ink-blot and does not pay comparatively enough attention to colour or to movement etc. then his responses are dominated by F. In other words, if a person makes F responses devoid of colour and movement, it is indicative of his colourless personality. It has also been observed that if there is a judicious mingling of F responses with other categories of responses it is indicative of a subject's good control over himself and his ability to develop harmony between the intellectual and the emotional aspects of his personality.

To sum up the interpretation of the Rorschach responses, it has been noted that seeing whole figures indicates high intelligence and ability to synthesise. A predominance in forms in motion, specially of human forms, is indicative of vivid imagination. Too much response to colour signifies impulsiveness. If a subject observes mostly animals in the ink-blots and gives the unoriginal responses, it is indicative of his stereotype thinking and lower intelligence. Some people observe minute detail in Rorschach cards. It is an expression of their introversion and possible emotional conflicts. When a subject observes third dimensional shading effects, it denotes his anxiety. Thus the interpretation of Rorschach cards is marked by a deep anxiety into human personality and its expression in relation to colour, movement, form, etc.

An Illustration

It will be desirable to give here an illustration of a case in which the Rorschach test was applied. This case is reported by Crugman² as given below :

"Sylvia was 9 years 7 months old when referred for study two years ago by a cooperating family agency. The problem as stated then, was 'school retardation, enuresis, doing things dangerous to herself, migraine headaches, night terrors, tells fantastic stories, makes faces at herself in mirror, peculiar behaviour.' At that time, need for psychiatric treatment was evident, but the psychiatrist's schedule did not permit of her being taken on and she was placed on a waiting list. In the meantime the social worker from the cooperating agency continued to work intensively with the child and the foster parents with excellent results in handling and behaviour, but some neurotic symptoms still persisted. Four months ago the psychiatrist took the child on for treatment and has worked with her regularly since. Recently neurotic symptoms seems to have cleared, and the psychiatrist administered another Rorschach examination, giving it to the writer for interpretation and comparison with the original Rorschach to see if treatment could be terminated.

"The original Rorschach showed a tense, anxious repressed, neurotic child, with much violence breaking through only in the inquiry

² Crugman, M., "Rorschach Examination in a Child Guidance Clinic," *The American Journal of Orthopsychiatry*, 11 : 503-511, July 1941.

and not in the examination itself. The reexamination showed exactly twice as many responses as the first (22 as against 11), and in general, showed a lifting of repression, with form less rigid, with colour coming out in the examination rather than in the inquiry, much freer content, an elimination of shock reactions. Examples of actual responses are even more illuminating than the summarised protocol".

SYLVIA L. 1st ADMINISTRATION 2nd ADMINISTRATION

Card I ...	Look like a lady, but she has no head.	Eskimo lady—Her head is chopped off.
Card II ...	(Much turning —can't see nothin'—) 2 dead bears.	(Quick) These 2 are bears —their heads are chopped off—this is blood—their feet is chopped off.
Card III ...	2 skeletons	These 2 are ladies—their back is broken. This is a fire—they're putting something on the stove.
Card IV ...	(Disturbance) a man.	(No disturbance) Giant's feet—this is his hands and this is his tail —it's all a giant.
Card VI ...	Up here a horse, and I don't know what this is (bottom).	This is an animal's skin, and this is another one.
Card VIII ...	This looks like a bear—that's all I could see—there's some others but I forgot them—No—that's all I could remember now.	These are 2 bears—this is a flame—these are bodies —the 2 bears are putting the bodies on the fire to burn.

Card IX . . .	2 Reindeer —(laughs) I don't know.	I 2 animals are pulling the reindeers into the fire.
Card X . . .	That could be a rabbit— This could be a cat— —and that's all I see.	This is a bear peeking out through his hole. These are people. These are boys. These are people's bodies.

"Changes in the second examination are not due merely to maturation; re-examination of any other children who have not been treated do not yield such characteristic changes.

"The conclusion, submitted to the psychiatrist after interpreting the second Rorschach and comparing it with the first, was : 'The re-examination shows a more productive and much less inhibited girl, probably living less in fantasy, much freer in expression, less disturbed neurotically, living out her fantasy, probably more annoying to people about her, but less disturbed intrapsychically.' On the basis of his knowledge of the case and results of the Rorschach re-examination, the psychiatrist decided to prepare the child for termination of treatment".

Criticism

The Rorschach techniques for studying personality has been considerably criticized on the grounds of the established canons of objectivity, reliability and validity. People question its usefulness on the ground that it is lacking in precision and scientific basis. In other words, the Rorschach test is not scientifically standardized with the result that the responses are interpreted somewhat differently by different people. There is always an element of intuition as well as of subjectivity in the interpretation of Rorschach interpretation. In spite of these criticisms it has to be admitted that the Rorschach test of personality is still the most widely used instrument and with the passage of time enough effort has been made to establish its validity and reliability. Nothing is perfect in this world and so to expect perfection in the Rorschach technique is asking for the moon.

THEMATIC APPERCEPTION TEST

The Thematic Apperception Test is another widely used projective technique for the study of personality. This test is popularly known as TAT. It was devised by psychologists Morgan and Murray³ as a means for investigating fantasies. They published a report of the test in 1935 and the test was published in 1943 by Harvard University Press. Morgan and Murray got the idea of TAT from the fact that writers put their own personalities into their works. The story writer reveals himself in his story. With this idea in mind, Morgan and Murray prepared a set of 30 pictures (10 for men, 10 for women, 10 for both) around which stories could be told by a subject under study. In describing the story of a picture, the subject reveals his own needs, emotions, conflicts and complexes. His underlying inhibited and repressed tendencies may be revealed by the subject without his knowledge.

The test is called Thematic Apperception Test on account of the personality theory on which it is based. Murray has described this theory of personality in his book *Explorations in Personality*.⁴ In his theory Murray considers personality as consisting of an integrated aggregate of *needs* and *perceptual press*. Needs create tension and the individual strives to reduce it. The frequency and the intensity of needs determine a major aspect of personality. A *Press* of an object or person is defined as "what it can do *to* or *for* an individual personality, i.e., the power it has to affect the well-being of an individual."⁵ It is further to be noted that needs and press are related for it is on the basis of environmental press that the individual interprets his current needs. "In Murray's theory the behaviour resolution of a particular complex of need-press is called a *thema*. A *thema* is the dynamic structure of an event, i.e, the general nature of the environment and the individuals response. According to the theory, one can *infer* the general nature of an individual's *needs* and perceived *press* by analyzing a large variety of his thematic tendencies."⁶

³ Morgan, C.D. and Murray, H.A. 'A Method for Investigating Fantasies: The Thematic Apperception Test'. *Arch. Neurol. & Psychiat.*, 1935, 34, 289-306.

⁴ Murray, Henry A. *Exploration in Personality*. New York: Oxford University Press, 1938.

⁵ Thompson, George G. *Child Psychology*. Boston Houghton Mifflin Co., 1952, p. 606.

⁶ *Ibid.*, p. 607.

The pictures in the TAT are ambiguous and they depict people in various situations. When a subject perceives a picture, he identifies himself with one of the characters in it and thus 'projects his own needs and press perception into his description of the behaviour and feeling of the picture character.' It is believed that an analysis of the frequency and intensity of an individual's needs and perceived press, is helpful in understanding his personality.

The Thematic Apperception Test consists of 30 pictures plus one blank card. The cards are used in different combinations according to sex and age of the subject under study. Some cards are used with all subjects and some others are meant for only one sex or age group. Twenty pictures are used with one subject in two sessions, of ten pictures each time. Eleven of the cards have been found suitable for young and adult subjects of both sexes.

The TAT cards bear a number on their back and a letter if necessary. For example those cards which are suitable for young and adult subjects of both sexes bear only a number and are not followed by any letter. But those cards that are suitable for young boys are followed by the letter 'B', those suitable for young girls bear the letter 'G'. Then we find letters 'M' and 'F' printed along with the numbers of the cards. 'M' means for males over 14 and 'F' stands for females over 14. On certain cards we find 'MF'. It stands for males and females over 14. Then on certain cards we may find 'BM' which stand for boys and older males and on certain cards 'GF' appears which means that these cards are suitable for girls and older females. These cards are grouped in such a manner that they can be used according to the age and sex of the subjects. As indicated above in the administration of TAT nineteen picture cards and one blank card are used. These twenty cards are used into two series of 10 cards each. For example the cards selected for males over 14 years of age are arranged in the following series:

(1) First series :

Nos. 1, 2, 3BM, 4, 5, 6BM, 7BM,
8BM, 9BM, 10.

(2) Second Series:

Nos. 11, 12M, 13MF, 14, 15, 16,
17BM, 18BM, 19, 20.

General Procedure

The TAT cards are presented to a subject according to an indicated order in two one-hour sessions. As we know the TAT is administered in two sessions. But the important thing is that there should be a gap of at least one day between the first and the second session. An examination of the pictures included in the second series will indicate that these pictures are rather unusual and somewhat dramatic. Therefore, the subject is required to be more expressive in 'telling the stories'. The first session in which the first series of pictures are shown prepares the ground in a way for the second series of pictures shown in the second session after the gap of one day or even more. It may be noted here, however, that general recommendation as regards the procedure is not strictly followed by the psychologists using TAT. Perhaps due to lack of time and facilities it is not possible to examine a subject in two sessions with a gap of at least one day or even more. Sometimes some TAT psychologists select a smaller number of pictures and administer them in one session only.

Administration

In the administration of TAT test it is extremely important that the subject is made to feel relaxed so that he is able to express himself willingly and spontaneously. Thus a friendly atmosphere between the examiner and the subject being tested is extremely helpful in getting the genuine responses to TAT pictures. With this end in view the subject is provided with a comfortable chair so that he may sit in a relaxed position. Sometimes a couch is provided and is placed in such a position that the back of the subject is towards the examiner. Thus the subject and the examiner do not sit face to face and this helps the subject to create his own stories as spontaneously as possible. When the subject is a child or a psychotic patient he is made to sit face to face so that there may be no trouble of any kind during the period of test administration.

The administration of TAT begins with a standard instruction. For example in the case of form A which is suitable for adolescents and adults of average intelligence the following instruction is given:

"This is a test of imagination, one form of intelligence. I am going to show you some pictures, one at a time; and your task will be to make up as dramatic a story as you can for each. Tell what

has led up to the even shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking; and then give the outcome.

"Speak your thoughts as they come to your mind. Do you understand? Since you have 50 minutes for 10 pictures you can devote about 5 minutes to each story. After examining the picture carefully for about 20 seconds chose a proper name for the chief character of the story you will tell, and then put the picture aside, face downward. Do you understand? Announce the name of your chief character and then put the picture aside. Here is the first picture".

There is another form of instruction for children and adults of little education or intelligence and for psychotics. This is known as form B. The following is the description of form B instruction:

"This is a story-telling test. I have some pictures here that I am going to show you, and for each picture I want you make up a story. Tell what has happened before and what is happening now. Say what the people are feeling and thinking and how it will come out. You can make up any kind of story you please. Do you understand? Well, then, here is the first picture. You have 5 minutes to make up a story. See how well you can do".

It may be noted here that sometimes these instructions are modified to suit the age, intelligence, personality, etc. of the subject. When the subject starts giving his first story after seeing a card he is again reminded of the instructions so that he is able to make up the story according to the instructions. Now this is done in a manner that the subject does not feel embarrassed. For example the examiner might say that the story given by the subject was interesting but he forgot to say how the boy in the picture behaved when his mother criticized him and so the story was incomplete. In this way the examiner can see that the story given by the subject is rather complete in terms of the instruction given to him. As a matter of fact the examiner has to remain non-directive and he is not supposed to say anything because this might affect the spontaneity of the subject. But at the same time the examiner is permitted to inform the subject as regards the time he was taking in making of a story. As we know that there are 5 minutes for each picture card and the subject has

to tell his story about that card within that time limit. It is also desirable that the subject is encouraged from time to time for the kind of stories he was making. This is done with a view to stimulate his imagination further. If the examiner finds that the subject has left out certain crucial points he might say, "what led up to this situation?" Thus the examiner has to avoid giving any direct hint or even discussion. Sometimes a subject may give a lengthy story and thus cross the time limit. In order to check this the examiner may say, "how does it turn out?" It has been observed that a good examiner is able to have a story of about 250 words from an adult subject and 150 words from about 10 year old children.

The Second Session

The second session of the TAT test is very important because at this time the subject is in a position to project his feelings and anxieties without any kind of hesitation or reservation. It is important to bear in mind that while making the appointment for the second session the subject should not be told that he will be required again to make up stories, because if he comes to know this, he might compose certain stories beforehand and tell them during the second session.

The instructions regarding the second session are a little different. The form A instruction for the second session runs as follows:

"The procedure today is the same as before, only this time you can give freer rein to your imagination. Your first 10 stories were excellent, but you confused yourself pretty much to the facts of everyday life. Now I would like to see what you can do when you disregard the common place realities and let your imagination have its way, as in a myth fairy story, or allegory. Here is picture number 1."

The form B instruction is as follows:

"Today I am going to show you some more pictures. It will be easier for you this time because the pictures I have here are better, more interesting. You told me some fine stories the other day. Now I want to see whether you can make up a few more. Make them over more exciting than you did last time if you can—like a dream of a fairy tale. Here is the first picture".

It is clear from these instructions that during second session there is greater emphasis upon the use of imagination rather than description of realities of life. That is why there is a blank card No. 16 included in the second series and the examiner says to the subject, "see what you can see on this blank card. Imagine some picture there and describe it to me in detail". If the subject is unable to imagine a picture on the blank card the examiner says, "close your eyes and picture something". After the subject has described the picture of the object he has seen with closed eyes the examiner asks him to tell a story about it. Thus the blank card is utilized to discover in an unstructured situation the hidden feelings and anxieties of a subject.

The administration of TAT test is also done in a group form. For this purpose the TAT pictures are projected on a screen for 20 seconds and a group of subjects which observes the pictures writes down a ten minute story for each picture. If the time at the disposal of the examiner is only one hour then in the group administration of the TAT only 5 pictures are utilized. Thus the group administration of TAT test has been found useful as a rough screening device.

Interpretation

There is no standard list of a variables for the TAT. Therefore, the interpretation is extremely difficult for a person who is not well experienced in the administration of this test. A knowledge of the conceptual framework of this test is extremely helpful. There are three basic assumptions underlying the TAT. These are given below:

(1) The first assumption is that the characters of a story given by a subject are related to his personality needs. Therefore, a story composer projects some of his own *self-constituents* into one of the characters of a story. Such a character of the story which is the recipient of self projection is known as *self-career*. Thus the first assumption deals with the nature of self-career which is found in the description of one of the actors of a story.

(2) The second assumption is that the portrayal of other characters in a story is related with those personalities which are related in some way or other with the subject. For example a subject's parents, siblings, friends, rivals, etc. with whom he has active relationship may be expressed through the description of other characters

in a story. Such recipients of a subject's projection pertaining to relationships are known as *figure-careers*. It is pointed out by the makers of this test that a figure is "a member of the subject's 'internal company', one of the imaged objects which frequent his stream of thought and with which he interacts in his fantasies and dreams . . . some of the figures, however, seem to be phantoms of the child's imagination derived from un-nameable sources".

(3) The third assumption underlying the interpretation of the TAT concerns the nature of the plot of a story given by a subject. It is believed that memory traces as well as actual or fantasied events affecting the development of the subject are utilized in the construction of the plot of a story. It may be remembered that the construction of a plot as well as description of various characters and their behaviour is merely projection made by a subject. So they should not be taken as a complete description of a subject's personality problems. In the interpretation it is necessary to select only the relevant material and leave out such descriptions as have no relevance with the main theme of the story. Briefly the purpose of interpretation is "to find the grain: to identify in the story the self-careers, the figure careers and outcome of their interactions".

Thema, Needs and Press

In the interpretation of TAT stories it is necessary to observe and identify the series of interaction units or *themas*. By an interaction unit is meant here "a temporal segment in which the self career or chief actor deals with his physical environment (which may, in part, symbolise a human being), or with an animal, or with another individual, or with a group, or with someone within himself". This is also the nature of a *thema*. A *thema* in the TAT is considered as a dynamic structure of the event describing the direction of the two opposing forces one dealing with the *needs* of the subject and the other with the *press* of the environment. Thus the interpretation has to be done in terms of the (1) forces emanating from the 'hero' and (2) forces emanating from the environment. These two divisions are based on the concept of *needs* and *press*. It is assumed that a story composed by a subject pertaining to a TAT card depicts the subject himself through one of the figures in the story. Every act of the hero described in the story is to be classified in terms of a need or needs. For example if an act of violence by the hero is described it may mean the need for aggression.

Murray has given a comprehensive list of manifest and latent needs as well as various objects relationships which are appropriate for need reduction. He has also described in detail the common press of childhood. It is pointed out that "these press are reflections of . . . preceptions and do not necessarily mirror the objective environment. In the tables on pages 250-51-52-53 the first one deals with the needs and the second one with the press.

There are certain signs in the interpretation that are indicative of psychological disorder. For example if the subject rejects a TAT picture, or criticizes it may be indicative of a psychological disorder. Other forms of behaviour-manifestations indicative of psychological disorders are: very prolonged reaction time, vacillation, incoherence of thought, omission or distortion of figure etc. We give below the signs of psychological disorders and psychological health from a Manual on Military Clinical Psychology (1951).

Signs of Psychological Disorder

a. The examiner may suspect some mental disorder or social maladjustment if *several* of the following signs are *conspicuously* or *frequently* present:

(1) *Formal, structural signs.* Rejection of picture, criticism of picture, very prolonged reaction time, vacillation, quibbling, blocking, incoherence of thought, omission or distortion of figure or significant detail, uncommon misidentification or confusion of sex, very short story, very bizarre story, peculiar symbolization, emotional incoherence of plot structure (casual incongruity or contradiction).

(2) *Content signs such as:*

- (a) Weak hero—over-dependence, extreme anxiety, unsustained efforts, avoidance of critical issue or task, absence of restraining, collapse of hope, self pity profound despair, suicide.
- (b) Incapacitated hero—incurable illness, irreparable mutilation, impotence, prolonged internal conflict, extreme self-abasement or guilt, hopeless insanity.
- (c) Egotistical—marked narcissism, exorbitant ambition, extreme self-centered isolation, weak and unsustained interpersonal relations, absence of erotic love and marriage, suspicious and delusions, absence of benevolence or of socially oriented action, misanthrope.

NEEDS

1. Positive Cathexis

- Supra: a. Mother
b. Female

- c. Father
d. Male

- e. Brother
f. Sister

- Infra: g. Brother
h. Sister

i. Contemporary

- j. Animal
k. Possessions

2. n Affiliation

- a. Friendliness
b. n Suc: Dependence
c. n Def: Respect
d. n Nur: Kindness

3. n Deference

- a. n. Blam: Compliance
b. n Aff: Respect
c. n Nur: Devotion
d. Ego Ideal, Emulation
e. Suggestibility

4 n Nurturance

- a. Sympathy & Aid
b. n Aff: Kindness
c. n Def: Devotion

5. n Succorance

- a. Crying
b. n Aff: Dependence
c. n Harm: Appealance

6. n Harmavoidance

- a. Timidity
b. n Suc: Appealance
c. Nightmares
- d. Fears:
i. Insup., Heights & Falling
ii. Water
iii. Darkness
iv. Fire

v. Isolation

- vi. Assault, Lightning
vii. Assault, Animals
viii. Assault, Human

- General Hostility
Father
Mother
Contemporaries

- ix. Illness & Death
x. Miscellaneous

7. n Infavoidance

- a. Narcisensitivity
b. Shyness, Embarrassment
c. Avoidance of Competition

d. Inferiority Feelings

- i. General
ii. Physical
iii. Social
iv. Intellectual

8. n Blamavoidance and Superego

- a. Sensitivity to Blame
b. n Def: Compliance
c. n Aba: Shame & Self-depreciation
d. Directive Superego

e. Religious inclination

9. n Abasement

- a. n Blam: Blame-acceptance
b. n Def: Subservience
c. n Harm or n Inf: Surrender

10. n Passivity

- a. Inactivity
b. n Aba: Acceptance

11. n Seclusion

- a. Isolation
b. Reticence
c. n Inf: Shyness

12. n Inviolacy

- a. n Dfd: Vindication
b. n Ach: Restriving

NEEDS

- c. n Agg: Retaliation
- d. n Auto: Resistance

13. Negative Cathexis

- Supra: a. Mother
- b. Female

- c. Father
- d. Male

- e. Brother
- f. Sister

- g. Contemporaries

- Infra: h. Brother
- i. Sister

14. n Aggression

- a. Temper
- b. Combativeness

- c. Sadism

- d. m Dom: Coercion
- e. n Auto: Rebellion
- f. n Suc: Plaintance

- g. Destruction

15. n Autonomy

- a. Freedom
- b. Defiance

- c. Inv: Resistance
- d. n Ach: Independence

16. n Dominance

- a. Leadership
- b. Inducement
- c. n Agg: Coercion

17. n Rejection

- a. Hypercriticness
- b. n Inf: Narcissensitivity
- c. n Sec: Inaccessibility

18. n Noxavoidance

- a. Hypersensitivity, Gen.
- b. Food

19. n Achievement

- a. General
- b. Physical
- c. Intellectual

- d. Caste
- e. Rivalry

- f. Ego Ideal

- g. n. Inv: Restriving
- h. n Auto: Independence

20. n Recognition

- a. Recitals of Superiority
- b. Cathexis of Praise
- c. n Exh: Public Performance

21. n Exhibition

- a. n Rec: Public Performance
- b. n Sex: Exhibitionism

22. n Sex

- a. Masturbation
- b. Precocious heterosexuality
- c. Homosexuality
- d. Bisexuality

23. n Acquisition

- a. Greediness
- b. Stealing
- c. Gambling

24. n Cognizance

- a. Curiosity, General
- b. Experimentation
- c. Intellectual
- d. Sexual, Birth
- e. Genitals

25. n Construction

- a. Mechanical
- b. Aesthetic

26. n Order

- a. Cleanliness
- b. Orderliness
- c. Finickiness about Details

NEEDS

27. n Retention

- a. Collectance
- b. Conservance

28. n Activity

- a. Physical
- b. Verbal

29. Intensity

30. Emotionality

31. Persistence

32. Sameness

- a. Constance of Cathexis
- b. Behavioural Rigidity
- c. Mental Rigidity

33. Inhibition

34. Elation

35. Imaginality

36. Deceit

PRESS

1. p Family Insupport

- a. Cultural Discord
- b. Family Discord
- c. Capricious Discipline
- d. Parental Separation
- e. Absence of Parent:
 Father
 Mother
- f. Parental Illness: Father
 Mother
- g. Death of Parent:
 Father
 Mother
- h. Inferior Parent: Father
 Mother
- i. Dissimilar Parent:
 Father
 Mother
- j. Poverty
- k. Unsettled Home

2. p Danger or Misfortune

- a. Physical Insupport
 Height
- b. Water
- c. Aloneness, Darkness
- d. Inclement Weather,
 Lightning

e. Fire

- f. Accident
- g. Animal

3. p Lack or Loss

- a. of Nourishment
- b. of Possessions
- c. of Companionship
- d. of Variety

4. p Retention, Withholding objects

5. p Rejection, Unconcern & Scorn

6. p Rival, Competing Contemporary

7. p Birth of Sibling

8. p Aggression

- a. Maltreatment by Elder
 Male
 Elder Female

- b. Maltreatment by contemporaries

- c. Quarrelsome Contemporaries

9. Fp Aggression-Dominance, Punishment

- a. Striking, Physical Pain
- b. Restraint, Confinement

PRESS

10. p Dominance, Coercion & Prohibition	15. p Affiliation, Friendships
a. Discipline	16. p Sex
b. Religious Training	a. Exposure
11. Fp Dominance-Nurturance	b. Seduction, Homosexual Heterosexual
a. Parental Ego Idealism, Mother Father Physical Econ, Vocation Caste Intellectual	c. Parental Intercourse
b. Possessive Parent, Mother Father	17. Deception or Betrayal
c. Over-solicitous Parent Fears: Accident Illness Bad Influences	Intraorganic Press
12. p Nurturance, Indulgence	18. p Illness
13. p Succorance, Demands for Tenderness	a. Prolonged, Frequent Illness
14. p Deference, Praise, Recognition	b. Nervous
	c. Respiratory
	d. Cardiac
	e. Gastro-intestinal
	f. Infantile Paralysis
	g. Convulsions
	19. p. Operation
	20. p Inferiority
	a. Physical
	b. Social
	c. Intellectual

(d) Psychopathic hero—ruthless treatment of others, crime that goes unpunished, sex crime calculated murder, incurable alcoholism, absence of guilt or remorse, outspoken homosexuality.

(e) Harmful social environment—malevolent father figure, malevolent mother-figure, implacable or persecuting enemy, not one loyal friend or spouse, complete absence of any attainable gratification.

(f) Unrealistic fortune—extraordinary gratuity, sudden elimination of difficulties, providential accident, unearned triumph, magical outcome.

b. Content analysis which reveals only a few of the aforementioned factors in moderate degree should be interpreted with extreme caution : indicative of trends only.

Signs of Psychological Health

a. Signs of mental disorder or social maladjustment should be considered in conjunction with the following signs of sustained ego structure, constructive and recuperative powers, successful socialization, and rationality.

- (1) *Formal, structural signs*—well portrayed characters and situations, emotionally coherent long story, interesting realistic story, imaginative story, mobility and action, long time span.
- (2) *Content signs such as:*
 - (a) Adequate hero-zestful action (self-started endeavour acceptance of challenge or duty, realistic understanding of the situation, bravery, sustained or repeated effort despite danger of failure, justifiable aggression, realistic accomplishment of task or resolution of problem, final triumph or tragic defeat, heroic death, wise acceptance of personal limitations or of unalterable destiny.
 - (b) Socially oriented hero—intense and lasting interpersonal relation, loyalty, love affair, marriage as goal or as outcome, participation in group action, responsible leadership, social reform as goal or as outcome, humanitarian action, chivalrous action or rescue, compassionate action, devotion to child.
 - (c) Beneficent social environment—benevolent father-figure, benevolent mother-figure, benefactor, co-operator, loyal friend or spouse, attainable reward or gratification.
 - (d) Moral structure—egocentric, dishonourable, delinquent or criminal hero is punished by society or fate hero experiences guilt or remorse that is sufficient to the crime; hero is penitent and makes reparation; hero restructures his life or reforms his character.

b. It is well to emphasize that effective clinical evaluation strives to reveal the wholesome assets of the person to the same degree as the revelation of unwholesome liabilities. The dynamics of psychological health should be considered at every opportunity in analysis

of TAT.

Thus it is evident that the TAT test requires great skill on the part of the examiner in administration and interpretation. Almost the same type of criticism is made against it as we find in the case of the Rorschach. But the TAT is widely used and it supplements the study of personality by the Rorschach Technique.

CHAPTER 14

CAUSES OF ABNORMAL BEHAVIOUR

The causes of abnormal behaviour are complex in nature and many in number. It is never possible to specify only one cause of one type of mental illness. That is why there are two types of causes which are mentioned in the understanding of abnormal behaviour. One is predisposing type of causes. The factors that assume the form of predisposing causes are mainly genetic in nature and they may also relate to the physical and the family history of the patient. For example if a child is physically handicapped, his parents may reject him and may not love him. Due to this the child can develop abnormal behaviour and later in life may suffer from serious mental illness.

The second type of causes is known as precipitating in nature. In other words precipitating causes are such as produce immediate mental disturbances or traumatic experiences. For example if a person has a sudden death or a financial loss it may serve as a precipitating cause for his mental illness. Of course there are individuals who are not easily affected by such precipitating causes, nonetheless sudden misfortunes, severe losses etc. do serve as precipitating causes of abnormal behaviour.

BIOLOGICAL FACTORS

Heredity and Environment

Among the causes of abnormal behaviour there are quite a few biological in nature. Some of them relate to the heredity of the patient and some are related to this constitutional make up. As regards the hereditary background of abnormal behaviour, it has been found that every individual has a particular set of genes from his parents. These genes are the carriers of such constitutional and temperamental traits as are hereditary in nature. It is to be mentioned here that every human trait is the result of the inter-connection between hereditary potential and environmental forces. In other words a person is born with potentialities for certain type of abilities.

When he finds the desirable environment his potentialities are fully developed. Thus a personality trait is not entirely governed by hereditary. So far as the hereditary nature of a trait is concerned, we can say that a trait is to be regarded as hereditary only when its relation can be established with a particular gene combination. A typical example of hereditary trait is the colour of the eye or baldness or some other such physical characteristics. Here it may be pointed out that there are certain traits which are considered congenital in nature. However, congenital traits are different from hereditary traits. Congenital traits are those which are present at birth and are not the result of gene patterns. They are due to the influence of prenatal environment. Thus in strict sense of the term congenital traits are essentially environmental in nature. While on the other hand hereditary traits are due to a part gene combination.

Hereditary Causes

It is interesting to note that in the early phases of the study of abnormal behaviour importance of hereditary causes was unduly emphasised. But recent researches have shown that there are only a few specific mental disorders that have direct relation with heredity. Mention may be made of Huntington's Korea and Amaurotic Family Idiocy, also known as Tay Sakh Disease. Thus mental disorders are considered hereditary in nature. But the evidence available is not entirely satisfactory to show that these diseases have hereditary causes. In recent times studies have been made to find out the close relationship between a mental illness like schizophrenia and the genetic structure of the individual. It has been found that genetic factors serve as causes of mental diseases like schizophrenia, manic depressive psychosis and epilepsy. Studies by Kallman have indicated that there is close relationship between schizophrenia and the genetic background of the individual. Studies by Rosnaff have shown that manic depressive psychosis has a genetic factor. Likewise Lennox found a genetic factor in Epilepsy. To sum up, it is present view that the hereditary causes of mental illness are much more limited in their influence than it was assumed to be before. Thus the idea that mental illness appears to 'run in families' is not correct from the genetic view point. If there is a sort of chain of mental illness found in a family from generation to generation it may be due to factors like similarity of home environment life experiences and interpersonal relations.

Constitutional Make-up

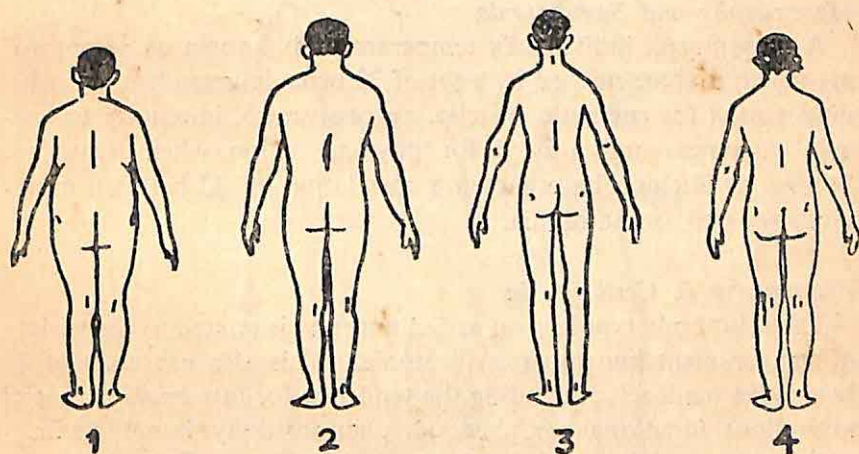
The constitutional make up of a person is also a factor in mental illness. The physique, temperament, endocrine functions and other factors of human physiology are considered of constitutional nature. Studies by Kretshmer and Sheldon have shown a positive relationship between the physique of a person and his personality. Kretshmer published a book entitled *Physique and Character* in 1925. In this book he described four types of physiques and their related personality characteristics. The first type of physique according to Kretshmer was the pyknic type marked by stocky build and short limbs. A person with pyknic type of physique is extrovert and has a fluctuating mood. The common mental illness likely to be developed by this type of person is the manic depressive psychosis. The asthenic type of person has a slender build and long limbs. He is introvert and is likely to suffer from schizophrenia. The athletic type of person has a strong body solid and muscular physique and indicates tendencies of being introvert. The final and the fourth type according to Kretshmer is the dysplastic type of person whose body lacks proportion and cannot be classified under the above mentioned types. The dysplastic type of individuals is also likely to have an introvert personality.

Sheldon's Classification of Physique and Temperament

William Sheldon studied several thousand photographs of American male college students and found that there were three basic factors responsible for all variations in their physique. Sheldon based his theory on the fact that in the human embryo there were three layers of tissue—endoderm, mesoderm and ectoderm. The growth of various organs is related to these three layers of tissue. For example the body structure that develops from the endoderm is the digestive viscera. From the mesoderm layer of tissue the bony structure and muscles are developed and the ectoderm layer of tissue is the base for the development of the nervous system and skin. Sheldon named the three body types as *endomorph*, *mesomorph* and *ectomorph*. According to Sheldon in every individual all the three body components are present but one of them predominates. Thus the predominant component is responsible for the name of the type to be given to a person. The endomorph person has soft roundness in various part of the body and a large digestive viscera. In the body of the mesomorph person there is relative predominance

of open muscle and connecting tissue. This type of person has a strong muscular physique. The ectomorph individual is long and slim. His bones are delicate and he has a relatively large brain and central nervous system. It may be mentioned here that Sheldon rated the three body component of a seven point scale. For example if an individual received a rating of one-one-six (1-1-6) it indicated the predominance of ectomorphy. Likewise if the body-rating was 5-2-3, it indicated the predominance of entomorphy. Thus in Sheldon's system of physique classification 1 is the minimum and seven is the maximum degree of dominance. An individual's constitutional classification, i.e. his somato type is made in terms of the degree of dominance of endomorphy, mesomorphy and ectomorphy.

Figure 22

*Types of Physiques*

- | | |
|---------------|---------------|
| 1. Endomorph. | 2. Mesomorph. |
| 3. Ectomorph. | 4. Average. |

Endomorphy and Viscerotonia

Sheldon made study of the relationship between these three body types and their temperaments. According to him there were three basic varieties of temperament related to the three somato-type mentioned above. The endomorphy has a high correlation (.79) with the type of temperament known as viscerotonia. The viscerotonic type of temperament is characterised by love of comfort luxury, eating and relaxation. Sheldon has given 20 behaviour

tendencies that are associated with the viscerotonic type of temperament. These behaviour tendencies are listed below:

(1) Love of physical comfort, (2) Relaxation in posture and movement, (3) Slow reaction, (4) Love of eating, (5) Socialization of eating, (6) Pleasure in digestion, (7) Love of polite ceremony, (8) Sociophilia, (9) Indiscriminate amiability, (10) Greed for affection and approval, (11) Orientation to people, (12) Evenness of emotional flow, (13) Tolerance, (14) Complacency, (15) Deep sleep, (16) The untempered characteristic, (17) Smooth, easy communication of feeling, extraversion of viscerotonia, (18) Relaxation and sociophilia under alcohol, (19) Need of people when troubled, (20) Orientation of childhood and family relationship.

Mesomorphy and Somatotonia

A mesomorph individual's temperament is known as somatotonia which is characterised by a set of 20 behaviour tendencies including a need for energetic exercise, aggressiveness, immunity to fatigue, directness and a need for physical action when troubled. Studies by Sheldon have shown a correlation of .82 between mesomorphy and somatotonia.

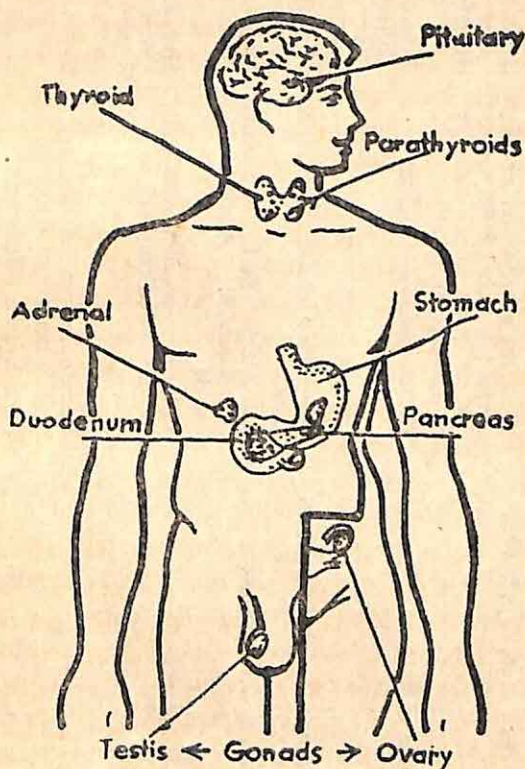
Ectomorphy & Ceribrottonia

The third body type known as Ectomorphy is related to the variety of temperament known as ceribrottonia. This also has a set of 20 behaviour tendencies including the tendency for fast reaction, social inhibitions, functional complaints, hypersensitivity, intentness insomnia and a need for solitude when troubled. The coefficient of correlation between ectomorphy and ceribrottonia, is .83. Thus Sheldon has shown a very high degree of correlation between somatotonia and varieties of temperaments. It is to be noted here that temperament can be recognized quite early in life and is almost unchanging. Another typical attribute of temperament is that it sets the general tone of a person's response to his environment. The temperamental behaviour is characterised by prevailing mood, sensitivity to stimulation, tempo and intensity of response and the energy level. The types of temperament that are likely to give rise to mental disorders are generally associated with hypersensitivity and the individual's limited capacity for tolerating stress situations.

Endocrine glands

Endocrine glands also serve as causative factors in the development of behaviour disorders. It is to be noted here that endocrine glands are those which secrete directly into the blood stream. The

Figure 23

*Location of Endocrine Glands*

functioning of endocrine glands is very closely interrelated with that of the autonomic nervous system. There are nine principal endocrine glands (see page 262) whose functional disorders produce abnormality in behaviour. The table on page 262 gives in detail the location, function and the related disorders of these glands.

<i>Gland</i>	<i>Location</i>	<i>Function</i>	<i>Disorders</i>
1. Pineal	Under surface of cerebrum	Unknown	Sexual development disturbed in pineal gland tumors
2. Pituitary	Under surface of cerebrum	Controls growth and development (ant. lobe). Influences on blood pressure and water regulation (post. lobe)	Hypofunction: retarded development; diabetes insipidus Hyperfunction: gigantism or acromegaly
3. Thyroid	Front of trachea	Regulation of metabolism	Hypofunction in infancy: cretinism; adult: myxedema. Hyperfunction: Goiter increased metabolism.
4. Parathyroid	On surface of thyroid glands	Regulation of calcium metabolism	Hypofunction: tetany, death
5. Thymus	Anterior mediastinum	Inhibitory effect on sexual development. Atrophies in adult	Hypofunction: Precocious sexual development
6. Adrenal cortex	Over kidneys	Influences sodium and water metabolism. Sexual glands	Hypofunction: Addison's disease Hyperfunction: Accelerated sexual development
7. Adrenal medulla	Over kidneys	Autonomic nervous stimulation (adrenalin production)	Hypofunction: No disease entities. Hyperfunction: none
8. Islets of Langerhans	In pancreas	Carbohydrate metabolism	Hypofunction: diabetes mellitus Hyperfunction: none
9. Gonads	Pelvis in female male	Testicles in male Growth and reproduction	Hyperfunction: Sexual precocity Hypofunction: Under-development or secondary sex characteristics.

Other Causative Factors

Besides the mentioned biological and physiological factors there are some factors that are related to body physiology and the physical illness and injury of a person. It has been found that differences in receptor and effector functioning, circulatory functioning and the make up of autonomic and central nervous system also serves as causative factors of abnormal behaviour. Sometimes a sudden and serious injury creates a traumatic change in the behaviour of a person. It has been found that head injuries, are the single most important factor for creating abnormality in behaviour. Chronic and severe diseases like cancer, tuberculosis diabetes etc. also produce abnormal changes in behaviour. Children who suffer from prolonged high fever are likely to be deprived of their proper mental development and may be victims of convulsive seizures and encephalitis. Studies have shown that extreme in physical exertion or states of semi-starvation give rise to personality changes and sometimes lead to mental breakdown. If a person suffers from nutritional deficiency, he is also likely to show minor personality changes.

PSYCHOLOGICAL CAUSATIVE FACTORS

The psychological causative factors of mental illness are related to the early childhood experience of a person. From this point of view it is extremely important to know the nature of interpersonal relationship. In order to find out the interpersonal relationship the most convenient way is to divide the span of life into seven periods such as infancy, early childhood, late childhood, adolescent, early adulthood, middle age and old age. These seven periods of life are based upon the chronological age. But it may be noted here that in all cases there is not a normal psychological growth maturation. The point being emphasized here is that it is quite possible to find a boy of ten years in age who is either below average or above average in psychological growth.

Infancy

Beginning with the life during infancy we can observe that this period is marked by utter helplessness and dependedness on the part of the infant. His physical needs are fulfilled by his mother. Thus from the time of birth to the latter half of the second-year,

the infant is helpless to meet his needs and depends upon somebody for it. But after the latter part of the second year the infant learns to walk and to communicate. This helps him in his organic development and he is also able to keep acquainted with his environment. He learns to find meaning in the things and people around him and as his age and experience increase, his perceptions of his social milieu are also developed. The nature of experiences of a child gained during infancy are extremely important for the subsequent development of personality. If experiences are happy, the personality development is harmonious.

As mentioned above, during infancy the child depends for his satisfaction and support on his mother. In other words, the quality of mothering is extremely important for it provides him the first meaningful contact with the world around him. It is through his mother that he is able to estimate the nature of world and the people he is likely to meet. If the mother is able to provide love and affection the child considers the people around him are warm and affectionate. Thus the quality of 'mothering' is crucial for normal development of the individual.

During infancy the principal need of the child is for food. If the child is fed properly he is easily satisfied and feels relaxed. On the other hand if the child has a rigid feeding schedule he feels dissatisfied for his individual emotional needs are not fulfilled. Thus it has been seen that infants who are forced to eat at a particular time even though they are not hungry have poor personalities. Due to ignorance, some mothers are unable to take care of their infants and they do such things as are likely to create trouble for the child later in life. There are some allied problems such as malformation of digestive system or allergy for a particular food etc. All these things create psychological complications and are likely to result in abnormal behaviour.

Early Childhood

During early childhood the child starts learning such things as help him in social adaptation. In other words, the process of socialisation begins during early childhood. Due to bodily growth and development, the child is able to have some independence and learns to take care of his simple needs. The family of a child has a marked influence on his personality development during this period. Parental love or dissatisfaction as well as parental approval or disapproval

serve as indicators of desirable or undesirable behaviour on the part of the child. The child learns to do those things that give him parental approval and he keeps himself away from such things as are likely to produce parental disapproval. Thus during early childhood the parent-child relationships are extremely important. Some of the factors that are psychological and causative in nature during early childhood, are: parent-child relationships, authority and discipline, aggression and hostility, toilet training, sexual development, sibling relations and traumatic experiences.

Parent-child relationships are marked by a normal healthy love and affection. But sometimes it happens that due to certain marital and family discord the child is subjected to either rejection or over protection. Those parents who have unsatisfactory marital adjustment are likely to reject their child. There are other cases of rejection such as both parents want a boy but instead they have a girl. Sometime immature parents who are not prepared to behave like grown up fathers and mothers reject their children. Unattractive children are also likely to be rejected. So there are many causes responsible for leading to rejection of the child by the parents. A child who suffers from rejection during early childhood is likely to win affection and attention of others by doing such things as make others love him or pay attention to him. Sometimes a rejected child may wish to retaliate against people for the hostility shown to him by his parents. The rejected child is likely to develop the feelings of worthlessness and anxiety. It has also been found that rejected children often show aggressive behaviour. They become quarrelsome, untruthful and learn methods to annoy adults. Many of the rejected children develop emotional coldness and become indifferent to kindness shown to them. Likewise over protection by parents during early childhood makes a child somewhat abnormal. It may be mentioned here that by over protection is meant the excessive care and love shown by parents. Generally over protection is shown by the mother as the father is not in a position to come in close contact with his child due to his daily work and profession. It has been found that over protected children lack self-reliance and sometimes they become egocentric and selfish. Thus we see that the causative psychological factors during early childhood are mostly concerned with parent-child relationships and the kind of experiences he is able to gain.

Late Childhood

During the late childhood that begins from the sixth or seventh year of life, we observe a vigorous physical growth in the child and also the emergence of his intellectual abilities. Due to his developed mental and physical abilities the child is able to expand his social circle and develops interpersonal relationships with individuals not belonging to his family. The child begins to go to school and makes new friends. Thus the process of socialisation continues vigorously during late childhood. It may be noted here that children who have developed a feeling of security in them during early childhood, are able to adjust socially in a better manner. In other words, children who have been unable to develop the feeling of security are not well adjusted during late childhood. Thus we observe that school adjustment during late childhood depends to a great extent upon the quality of experience and the feeling of security a child possesses. As regards socialization, those children who are able to find a place for themselves in the new social groups are well adjusted. But sometimes there are children who feel shy and hesitant are unable to socialize themselves. Children who are egocentric and pampered also have a poor social relation. It is, therefore, suggested that during late childhood a child should be enabled to gain satisfying group experiences.

Adolescence

The period of adolescence is marked by critical physiological changes. The individual approaches biological maturity and his experiences, potential adulthood. In other words, an adolescent is a person approaching adulthood. He is also called a marginal man. This brings a change in his mental outlook and he is faced with a number of conflicts. Thus during adolescence the causative psychological factors relate to physical appearance and the nature of relationship with the opposite sex. It has been found that if an adolescent is able to develop a satisfactory hetero social, sexual and vocational adjustment he develops a normal personality. But there are factors which delay his proper physical development. Adolescent boys and girls whose parents are authoritative and exercise too much control and discipline also suffer in their social and emotional adjustment. Thus the causative psychological factors during adolescence relate to parental interference and inadequate guidance and experience.

Early Adulthood

During early adulthood the individual tries to find a place in society by doing such things as enhance his social prestige. To begin with he desires to have a life partner who can support him emotionally. In other words, marriage takes place during early adulthood. If the individual is able to have satisfying marriage, his life is generally well adjusted. The important thing during this period relates to the kind of work one selects for his livelihood. If a person is able to find a job of satisfaction, he is happy and adjusted. But it has been seen that there are sufficient number of cases in which marital dissatisfaction as well as professional frustrations lead to maladjustment. Thus it is important that a person selects the right type of life-partner and finds a satisfying job. Failure in marriage and frustration in vocation may serve as causes of abnormal behaviour.

Middle Age

During middle age the main problems of adjustment relate to healthy changes in family and change of life. It is not uncommon for a person in his later adulthood to experience physical illness quite frequently. This physical illness leads to lack of endurance and tolerance. The individual becomes aware of his declining health. This awareness results in a change of outlook on life and people. During this period children are grown up and they go away with their families. Thus the middle aged man gradually becomes lonely. As regards his profession, he reaches his limit of promotion during this period. Thus there is no future for him as regards his professional work. The middle aged person has a fixed style of life and his attitudes are rigid. Thus he finds himself unable to adjust in a new situation. One other important factor affecting adjustment during middle age relates to the decline in sexual drive. This may lead to unhappiness if the wife does not realise this change in her husband. In certain families young members also create problem for the middle aged parents by not realising the biological and psychological stresses of their middle aged parents experience.

Old Age

Causative psychological factors responsible for abnormal behaviour during old age include loss of physical strength, feeling of decreasing usefulness, isolation and dependency. In old age a per-

son feels that his normal energy is disappearing and he is unable to do some of the tasks which require strength of an adult person. Thus the old man develops a feeling of decreasing usefulness. In other words, he finds that he is no more useful for the people around him. This creates a kind of inferiority feeling and the individual loses his sense of significance which is so vital in life.

Old persons have to depend for their maintenance on somebody-else. They are unable to care of their bodily needs and thus find themselves in a position of dependency. It has been observed that feeling of dependency is also associated with feeling of rejection. The old person feels that his children do not love him for his needs are not well attended by them. Due to this the old person adopts attention seeking devices and sometimes behaves like a child. Gradually he finds himself isolated. His old friends are gone and he is unable to move freely. His limited income is also a factor leading to isolation. Thus old people who develop abiding hobbies find themselves in a difficult situation leading to abnormality.

CULTURAL FACTORS

It has been observed that besides biological and environmental causative factors of mental illness there are certain cultural factors also. In certain social groups and societies it has been found that a particular type of mental disease tends to prevail in a great measure. For example it has been observed that technically advanced societies tend to produce schizophrenia more than a primitive society does. Likewise studies have shown that among the Irish people there is comparatively high incidence of alcoholism and among the people of New Zealand manic depressive psychosis is also high. Thus these studies provide enough evidence for the existence of cultural factors leading to abnormal behaviour.

Child Training

In every culture there is a particular type of child training given to the new born. In other words, child training practices differ from culture to culture. The important items of child training are feeding, toilet training, emotional training, sexual behaviour, preparation for marriage response to authority etc. Whiting and Child have made a cross-cultural study and examined norms and range of variation in child training practices in a world wide sample

of 75 societies. They found that child training practices influence personality development. They observed that beliefs and practices taught during early childhood are expressive of personality characteristics. In some cultures there is a rigid authoritarian relationship between parents and their children. This type of relationship leads to suppression and repression of normal responses. Due to this repression and suppression of normal responses children are likely to develop abnormal behaviour. Thus it is quite possible to find in some cultures withdrawing type of behaviour and in some the aggressive type of behaviour. In other words, there is a close relationship between culture and personality.

Value Structure

The kind of beliefs and values a person has, also affects his personality. In other words, the value structure of a person is developed in his culture. But sometimes it happens that the individual is born in a family which has its own typical sub-culture and differs from the normal culture of the community. For example there may be an orthodox Brahman family which does not believe in new social values regarding treatment of the untouchables etc. So a child brought up in such an orthodox family will have difficult times in society where there is a different sort of value structure. The point being emphasised is that the individual suffers from conflicts when he is to face opposing types of value system. The value system conflict creates mental illness. Sometimes it has been found that there is a great difference between moral values preached and practised. When a child finds this difference in preaching and practising the moral values, he loses esteem for the elders in society. Thus it is very necessary that there should be no difference in moral values taught and practised. But in some cultures this difference is found and it leads to mental illness.

Wishes

Another cultural factor of mental illness is related to the wishes and their fulfilment. Sometimes in industrially advanced societies excessive propaganda is made for selling new devices of homely comforts. But due to economic poverty the individual is unable to buy those devices and gain comfort. This leads to frustration and the individual begins to live in a world of fantasy. Thus the world of reality is lost and the individual is forced to find a place

in the world of imagination and illusion. In India too much popularity of films among the youth is indicative of the discrepancy between their wishes and the realities of their life. Adolescent boys and girls coming from lower and middle income groups and young adults earning hardly hundred rupees a month do not hesitate to buy a cinema ticket costing Rs. 2/8 or even more. This indicates their tendency to live in a world of make belief. They try to satisfy their unrealistic wishes and desires through the medium of films. But the world in which they live is entirely different from the films. So they find it difficult to adjust in a world of reality.

Strict Control

In certain cultures there are strict control over certain types of social behaviour. This leads to suppression of emotions and eventually some people find out dubious ways of gratifying their anti-social desires. Incidence of delinquency and irresponsible behaviour is much more in such societies as are technically advanced than in a society where family life is integrated. In other words, due to advanced technical development there has been family disorganization. The parents are unable to pay proper attention to their children and they have to work hard all the time to meet their living cost. Not only the costs of living are high but the requirements of technical job are also frustrating. Parents are transferred from place to place and they are unable to educate their children in a proper manner. This industrial and technical advancement has resulted in high production of material things which does not help the proper development of human personality. The industrial culture creates a lot of tension in the minds of the people for it disorganises their family life and does not provide abiding human relationships. That is why, there is a high incidence of mental illness in industrial societies.

Minority Communities

Minority communities find themselves isolated due to social prejudices. They suffer from feelings of insecurity and inferiority and thus try to compensate these feelings either by withdrawal or by aggression. The racial problem in the United States, the problems of communalism and casteism in India are responsible for making individuals of the minority community socially deviant and unadjusted. Sometimes sudden social and cultural calamities

create traumatic effects on the minds of the people. For example war is such a event which results in general disorganization of a society. The people suffer from war psychosis. In our own country the partition of India in 1947 created such conditions as brought family and social disorganization on a very large scale. Thus causative factors of mental illness are numerous and they ought to be controlled at the psychological and cultural levels.

CHAPTER 15

PERSONALITY DISORDERS

Mental disturbances usually occur due to disturbances in the functioning of personality. But there are disorders of personality that pertain to its structure. In other words personality disorders are related to structure of personality and mental disorders are due to such functional defects as develop abnormal behaviour. Here we want to consider only personality disorders also known as character disorders which are mainly structural in nature.

Personality disorders are generally placed in three groups. One group of personality disorders is mainly related to personality pattern disturbances. This group includes such cases of maladjustment as are of 'pre-psychotic' type. There are other characteristics of this group of personality disorders which we shall consider later. The second group of personality disorders includes such disorders as are indicative of personality trait disturbances. The third group of personality disorders is of sociopathic personality disturbances. Then there is a fourth group which is not so comprehensive as the above three in which such personality disorders are included as are largely in the form of a single symptom. This group is also known as the group of disorders related to special symptom reactions. A typical example of this group is stuttering or enuresis.

PERSONALITY PATTERN DISORDERS

In the personality pattern disorders or disturbances are included inadequate personality, schizoid personality, psychothemic personality and paranoid personality. We shall consider them one by one.

Inadequate Personality

Individuals who experience a prolonged period of failure and suffer from chronic feeling of inability are considered to have inadequate personality. In times of emergency a person with inadequate personality feels unequal to the task. Not only that such people find all life situations as expressive or emergencies. In other words, they do not experience any normal feelings in the

circumstances. Their energy and efforts are lost in meaningless and trifling things. Though an individual of inadequate personality is not mentally poor but due to immaturity and inadequacy he finds himself unable to take a decision or to arrive at a correct judgement in a given situation. There is lack of foresight and planning also. Another feature of a person within inadequate personality is that he becomes dependent upon his friends and community if he is not born in a rich home. In other words, such people are unable to be self supporting and economically independent as they are unable to meet life situations in a confident manner. An individual with inadequate personality remains so far a long time almost all his life for he has been unable to develop a strong personality structure. Due to poor structure of personality such people are unable to face difficult situations and to meet pressures and tensions of life.

Schizoid Personality Disorder

A person suffering from schizoid personality structure is characterised by his desire for aloofness and his inability to develop intimate personal relationships. There is a strong tendency in such a person to avoid realities of life and live in a world of day-dreaming or fantasy. A person of schizoid personality indulges in autistic (wishful thinking). Autistic thinking is indicative of too much attention to ones own wishes and desires and no consideration for the realities of life. A study of the life history of schizoid person would reveal that there has been a tendency to suffer from fear in early childhood and to avoid competition. During childhood individuals of this type are generally over obedient, extremely shy and hypersensitive. When they approach puberty they further withdraw from social life and become more introvert.

Individuals having schizoid personality often are fond of extremely idealistic talks and they frame unrealistic plans which are generally considered as a sign of eccentricity in them by others. Some people of this type, who are intelligent, write such books as are never published and they try to make such inventions as are never patented. Thus such people are unrealistic and of no practical use to society. In certain cases there is an intense disturbance with the result that a schizoid is considered likely to be a psychotic. Constitutionally a schizoid person is weak and he avoids taking any risk or develop any emotional attachment that is likely to involve him

in any short of commitment. Thus schizoid personalities are mainly unrealistic and are fond of autistic thinking and remain maladjusted almost all their lives.

Psychothemic Personality Disorder

Psychothemia or psychothemosis is marked by an alteration of mood specially between excitement and depression. Persons suffering from this type of disorder exhibit exaggerated extroversion and try to become friendly to an unnatural extent. They are unthoughtful in their generosity. In other words, they try to be generous even to those who do not deserve it. Thus a person suffering from psychothemic personality disorder is characterised by the tendency to be excessively extrovert and exhibit excessive friendliness. Besides this, such persons have a swing in their mood. Sometimes they feel elation and sometimes depression. When they feel elated, they are extremely generous and friendly. When they become depressed they try to be lonely. Psychothemic personality disorder in its mild form is not a serious problem. People suffering from a mild form of disorder tend to be efficient in organisational matters. They show lot of enthusiasm and do not get easily tired in their efforts. The only problem that comes up before the person of this disorder is his indiscriminate promises and commitments to people. Out of enthusiasm the person of this type goes on promising things which are beyond his power. Sometimes psychothemic persons develop the habit of drinking and establish extra marital relationships. In other words, they try to control their psychothemic personality disorder by indulging in prolonged social drinking and by developing extra marital relationships.

Paranoid Personality Disorder

This type of personality disorder is indicated in a person who has exaggerated suspicions, extreme jealousy and envy. Persons suffering from this disorder are extremely sensitive in their interpersonal relationships. They do not like their friends to be on intimate terms with anyone else. If they find a friend to be friendly to some one else, they become extremely jealous suspicious and envious. Paranoid personality disorder makes a person extremely difficult to deal with. Such a person is easily frustrated and try to take revenge. It has been observed that people who support a sectarian cause zealously are of paranoid personality type. Such people

are also fond of litigation. They try to harass people by filing a law suit or doing such things which make other uncomfortable. In its extreme form paranoid personality disorder assumes the form of paranoid psychosis.

PERSONALITY TRAIT DISORDERS

We have considered so far personality pattern disorders. Now we shall take up the second group of personality disorders related to personality trait disturbances. A personality trait is generally defined as a characteristic or a unit difference of personality. In other words, a personality trait is a characteristic which is clearly defined. But it is extremely difficult to point out the exact number of personality traits. Personality trait disorders are generally related to a person's inability to adjust in his environment. Due to faulty development of personality during childhood the individual is unable to face the environmental stress. Thus he is unable to maintain a harmonious relationship between himself and his environment.

Persons suffering from personality trait disorders are likely to resemble neurotics. But their disorders are mainly due to environmental stresses which they cannot bear. As stated earlier, personality trait disorders develop due to poor personality development during early childhood. Such people suffer from fixation. Thus when they find themselves in a stress situation they regress to their early childhood experiences. In other words, personality trait disorders occur in case of those people who are immature and have been unable to make themselves free from fixation or regression. It has been observed that personality trait disorders are of the following types: emotionally unstable personality, passive-aggressive personality and compulsive personality.

Emotionally Unstable Personality Disorder

Individuals suffering from this disorder display various types of emotional outbursts in situations which are not very stressful. In other words, people with emotionally unstable personalities exhibit emotional outbursts even in ordinary environmental stresses. Their emotional outbursts can be popularly described as hysterical. Such people are also argumentative and show temper tantrums. Emotionally unstable persons become easily excited and panic stricken.

When there is a personal difficulty or some tragedy they are entirely out of control. Such people are poor in their judgement because they are easily emotionally excited. The cause of their emotionally unstable personality disorder may be due to their desire to defend their ego from guilt and anxiety. In other words, due to unconscious guilt, anxiety and hostility such people develop emotionally unstable personalities as a kind of defense mechanism.

Passive Aggressive Personality Disorder

This type of disorder is rather general and has three specific forms: passive dependent form, the passive aggressive form and the aggressive form. It is quite possible to find all these three forms in the same person. But generally it is not so. Passive aggressive personality disorder is caused due to defective development of personality structure during childhood. In the case of passive dependent form of disorder it has been observed that people who have been very dependent during their infancy and childhood are likely to develop passive dependent form of personality disorder. Such people always look for support from others. Their typical features are helplessness and a tendency to cling to somebody else. When some responsibility is given to them, they become extremely nervous and anxious. In other words, in matters requiring initiative and leadership people suffering from passive dependent form of disorder are easily upset and find themselves at a loss to do anything. Such people are also not in a position to develop healthy interpersonal relationships. In other words, they try to be a burden on those who have any sort of relationship with them.

The passive aggressive form of disorder has almost all those features which are described above. But there is one difference that people suffering from this form of disorder try to indulge in subtle and indirect aggression. They express their aggressive behaviour in the form of sulking inefficiency and stubbornness. Such people also try to hinder others in their work by their passive resistance or by adopting subtle methods.

The aggressive form of passive aggressive personality disorder is expressed as outbursts, temper tantrums and destructiveness. Sometimes this assumes the form of morbid or pathological resentment. It may be noted here that individuals who have unconscious dependency try to become aggressive. Their aggressive form of

disorder is expressed through rumours and gossips as well as vindictive grudges. In brief persons suffering from this type of disorder are unable to control their aggression and thus create problems in society.

Compulsive Personality Disorder

There are people who appear to be very rigid, meticulous and over-conscious in their behaviour and work. They work hard and many of them are able to make useful contributions. But the saddest part of it is their compulsive behaviour leading to unnecessary and undesirable perfectionism. They are hard and cruel to themselves and to others. Thus they are unable to develop healthy and harmonious interpersonal relationship. They remain all the time tense and make others tense. In some cases of compulsive personality disorder there is a possibility of its developing into a neurosis. But such a possibility is rather rare as most of the persons suffering from compulsive personality disorder try to go on doing their work in a compulsive manner without going to that extreme which results into compulsive type of neurosis. Case histories of persons having compulsive personality disorder have suggested that such a disorder is likely to develop in those who have been unable to attain maturity. Such people have an adolescent pattern of personality. In other words, they have a case of fixation and try to regress by means of their compulsive behaviour.

Sociopathic Personality Disorders

Sociopathic personality disorders are characterised by a feeling of rebellion against the social customs. Those suffering from this group of disorders experience discomfort and are unable to develop interpersonal relations. Due to this they become nonconformists. Their nonconformist behaviours are of various types. Some of them become delinquents, criminals, sexual deviates, alcoholics etc. But it is to be kept in mind that all sociopathic disorders do not have the same expression of abnormality. It is quite possible to find a person to be a deviant without necessarily being a patient of sociopathic personality disorder. Sometimes criminal tendencies may be found in a person who has a severe type of mental illness such as a psychosis. In certain cases injury in the brain may also affect the personality of a person and he may behave like a sociopathic person. Sociopathic personality disorders are generally

of four types: anti-social reaction, dyssocial reaction, sexual deviation and addiction.

Anti-social Reaction—Sociopathic personality disorder expressed in the form of anti-social reaction is marked by lack of responsibility, inability to take correct judgement, emotional immaturity and inability to assess properly the consequences of one's behaviour. One of the main features of anti-social reaction is that the individual suffering from this disorder is always fighting with society and creates troubles for himself. In other words, he is unable to maintain a harmonious social relationship due to his anti-social reaction. Previously this type of disorder was known as "constitutional psychopathic state" or "psychopathic personality". Those who consider this type of disorder as constitutional psychopathic state explained its causation on the basis of some neurological defect which affect the proper functioning of the brain. Thus a person whose brain is unable to function properly due to neurological defect may be considered as a case of constitutional psychopathic disorder. In support of this view a case of a person suffering from some head injury or encephalitis is cited. Such a person generally expresses anti-social reaction. But there are other psychologists and psychiatrists who generally accept this view. According to them there are psychological factors involved in a case of psychopathic personality. They point out that if parent-child relationships are unhappy then there is a possibility for the child to develop an anti-social personality. In other words, children who are subjected to the processes of rejection, over protection and are unable to develop identification with their parents are likely to be of anti-social personality type. Coleman made a study of a number of cases showing sociopathic and anti-social reaction and found the following symptoms in them:

- (1) Inability to understand and accept ethical values.
- (2) Marked discrepancy between level of intelligence and development of conscience.
- (3) Egocentric impulsiveness, irresponsibility, lack of restraint and poor judgement.
- (4) Inability to profit from mistakes and ordinary experiences.
- (5) Inability to forego immediate pleasures for future gains and long range goals.

- (6) Impaired interpersonal relationships.
- (7) Low tolerance for stress.
- (8) Rejection of constituted authority and discipline.
- (9) Expert in lying, ready rationalization and protection of guilt.
- (10) Expert in being distressing, disappointing and irritating to others.

It may be mentioned here that the above symptoms are generally found in the behaviour of the sociopath. But a sociopath showing anti-social reaction has most of these symptoms. As regards the cure and treatment of individuals showing anti-social reaction, the process is a prolonged one. Generally they do not respond to treatment. But in some cases where the individual concerned co-operates with the therapist, cure is possible. As stated earlier this type of disorder is basically anti-social and violates all established ethical values. Therefore, it is imperative that the patient concerned must endeavour to accept authority and try to follow the value system prevailing in his society.

Dyssocial Reaction—Individuals expressing dyssocial reaction are different from those who are of anti social type. These people are dyssocial on account of their calculated crimes. In other words, dyssocial reaction is not due to unconscious hostility against authority or value structure. Persons manifesting dyssocial reaction are loyal to their own group as dyssocial individuals like gamblers, gangsters, prostitutes or racketeers. A group of gamblers maintains a healthy interpersonal relationship among themselves but are hostile to others in the society. Thus persons showing dyssocial (amoral) reaction tend to disregard social customs and codes and often violate accepted social rules and modes. Their dyssocial reaction is mainly due to the kind of life they lead. In other words, these people spend most of the time in their own 'typical' groups with the result that they are unable to realise the breaking of a rule in the general society.

Sexual Deviation—A personality disorder manifesting itself in the form of sexual deviation has a number of factors responsible for it. There are various types of sexual deviation such as homosexuality, transvestism, pedophilia, fetishism, bestiality, voyeurism,

exhibitionism, and sadism or masochism. It is important to bear in mind that sexual deviations occur generally when the individual is unable to develop hetro-sexual relationship.

Homosexuality—Homosexuality has been studied rather in detail and a number of cases have been reported. It has been found that homosexuals have hormonal imbalance and it serves as a constitutional factor for this type of deviation. As regards psychological factors, studies have shown that the individual concerned has not been able to develop a satisfying emotional relationship during his childhood. Sometimes an individual comes into contact with a grown up homosexual at an early age. This makes him a homosexual later in life. The other cause is that when small children are left to themselves, they explore by chance that homosexual relationship is satisfying for them. Another possible cause of this type of deviation is that the parent of the opposite sex influence the child unconsciously. For example between a mother and her son or between a father and his daughter it is quite possible to find the oedipus situation.

The Hungarian Physician Benkert was the first person to coin the word 'homosexual'. In 1869 under the Pseudonym of Kenybert, Benkert published a monograph on the nature of homosexuality. He wrote, "In addition to the normal sexual urge in man and woman, Nature in her sovereign mood has endowed at birth certain male and female individuals with a homosexual urge, thus placing them in a sexual bondage which renders them physically and psychically incapable.... This urge creates in advance a direct horror of the opposite sex and the victim of this passion finds it impossible to suppress the feeling which individuals of his own sex exercise upon him."¹ It may be mentioned here that this view of Benkert is still accepted by quite a large number of psychiatrists. There are some psychologists like Krafft-Ebing and Bloch who consider homosexuality as inborn.

According to Freud, homosexual tendency may develop largely due to fixation upon one of the parents. For example the boy who adores his mother unconsciously may identify herself with her and in later years may express a feminine tendency leading him to love someone with the same tenderness as was shown by his mother.

¹ Quoted by N. Thornton in his *Problems in Abnormal Behaviour*, 1946.

Alfred Adler regarded homosexuality as indicative of the attitude of a person inclined from his early childhood to satisfy his sexual urges by devising such methods as preclude any possibility of disappointment in dealing with the opposite sex. The Adlerian point of view is that basically homosexuality is rooted in a fear of women. This fear is due to deep seated feeling of inferiority within the individual. One of the famous psychologists in the earlier part of this century, Herschfeld made an intensive study of the problem of homosexuality and came to the conclusion that the germ of homosexuality was inherent at birth in the individual's very constitution. Not only this, Herschfeld points out that even the bodily measurements of many homosexuals are not exactly normal. Thus homosexuality has both constitutional as well as psychological factors responsible for its development.

Transvestism—Another form of sexual deviation is known as transvestism. Transvestism means dressing in the clothes of the opposite sex. In certain cases transvestism takes acute form and leads the individual concerned to live completely a life of the opposite sex. Sometimes certain male transvestites use feminine make-up such as lipstick etc. This is done by the male to identify himself with the female and thus appear more attractive to other men. It has been observed that a parent who has been disappointed to have a child of the desired sex tries to satisfy himself by dressing the child in the clothes of the desired sex. This gradually makes the child a transvestite.

Pedophilia—Pedophilia is such a sexual deviation in which a grown up person either male or female, attempts to satisfy his or her sexual urges with a preadolescent child. Individuals who suffer from the feelings of sexual inadequacy, emotional immaturity or fear of rejection by adult sex partner are likely to be pedophiliacs. Pedophiliacs generally indulge in the genital manipulation of the preadolescent child. In certain cases, severe physical injuries are inflicted upon the child. Thus making the child suffer from a traumatic experience. This form of sexual deviation is concerned with a heinous crime and is severely punished.

Fetishism—Fetishism is another form of sexual deviation in which gratification is achieved by means of contact with the love object

or any part of the object or clothes or something connected with love object. Sometimes even the presence of the love object is sufficient to satisfy fetishism. The typical fetishistic objects are handkerchiefs, hair, shoes, and parts of the object such as legs, breasts or ears. It has been observed that individuals suffering from this type of deviation sometimes indulge in stealing as well as assault. Fetishism is developed due to feelings of sexual inadequacy and the fear of disappointment in sex relationship. Closely allied with this sexual deviation are the causes of kleptomania (compulsive stealing) and pyromania (compulsive fire setting). It is believed that kleptomania and pyromania lead to sexual gratification.

There are some other minor forms of sexual deviation such as exhibitionism in which sexual gratification is achieved through exposure of the genitals or other parts of the body shown to the members of the opposite sex. Bestiality is the sexual deviation in which an individual uses an animal for sexual gratification. Voyeurism is a form of social deviation in which sexual gratification is gained by looking at nude woman or by watching people engaged in sexual intercourse. According to Fenichel voyeurism may develop due to castration anxiety. Voyeurism is also known as 'scopophilia' or 'inspectionism'.

Sadism and Masochism—Credit goes to Krafft-Ebing for making an intensive study of sadism and masochism. He coined these terms and discussed in detail the nature of these abnormalities. Sadism is named after a notorious Frenchman, Marquis de Sade. Sade was a thoroughly perverse person and spent his time and energy in persistent sexual cruelties. He was also the author of several books in which he has described sadistic behaviour. Thus he was a talented sexual deviant, who died in a mad house at a very ripe age.

Sadism stands for the sexual satisfaction derived from the infliction of physical pain. In some cases the sexual act itself is replaced by the sheer cruelty. In other words, the sadist gives pain to another person and out of the suffering of the person concerned he derives sexual pleasure. It may be mentioned here that sadism is an exaggerated form of more or less normal love behaviour like biting or squeezing. But in sadism biting etc. is positively cruel and extremely painful. Thus the aggressive impulse is inherent in sadism. It is, however, to be noted here that in normal sex relationship the male

partner is usually aggressive and domineering. This is quite natural. But when a case of sadism occurs then it is positive cruelty. There is a form of sadism which is mental in nature. In other words, mental sadism occurs where there is a positive effort to inflict mental pain on someone else. Mental sadism is expressed also in the form of abuses and filthy language. Thus the purpose of inflicting mental pain or subjective a person to mental cruelty is the typical feature of mental sadism.

Masochism is the opposite of sadism. This term is coined after the name of a Austrian Novelist, Leopold von Sacher-Masoch. Sacher-Masoch was a masochist himself and he has described this sexual deviation in two or three of his novels. The wife of this novelist was Sacher-Masoch a sadist and they both had agreed solemnly to practise sadism and masochism. In other words, the wife being a sadist inflicted severe pain on her husband and the husband being a masochist enjoyed the pain inflicted by his wife. Thus masochism makes a person to enjoy pain of physical or mental character. In certain cases a masochist may enjoy abusive language and feel happy in a very degrading position. There is a mention of symbolic masochism in which a person may like to be placed in a helpless situation created by his own desire. For example, a man may ask a woman to tie his legs and hands and leave him in a helpless condition. By doing so the masochist derives sexual satisfaction in a symbolic manner. Cases of masochists have been reported where extreme type of degradation and debasement were attempted, so much so that it was beyond human imagination. According to Thornton, "just as sadism so often suggests an exaggeration or intensification of the male impulse towards aggressiveness, so does masochism suggest an exaggeration or intensification of the female impulse towards submissiveness. If, however, we encounter sadism in a woman or masochism in a man, we are apt to find that the anomaly exists in a rather extreme form. Thus it is evident that sadism and masochism are basically the expression of the same dynamic pattern of personality disorder which is developed due to unhappy early childhood associated with sexual excitation accompanied by infliction or suffering of pain. There is also the presence of castration anxiety which makes the individual to prove his strength by inflicting pain or by depriving others of the satisfaction of inflicting pain by hurting ones own self. It has also been found that sadism and masochism are also

expressive of unconscious ambivalence towards the sexual partner. In other words, this unconscious ambivalence is the expression of love combined with passion.

Alcoholism and Drug Addiction—Alcoholism and drug addiction are also indicative of personality disorders. It is suggested that in order to escape anxiety and mental torture a person may begin to take alcohol. Thus it is a form of escape from a unhappy situation. It may be noted here that effect of alcohol on the brain is a depressing one. In other words, the general belief that alcohol is a stimulant is not correct. The fact is that alcohol makes the brain less sensitive with the result that the brain is not able to experience anxiety or stress in its natural intensity. The effect of alcohol is depressing and makes the individual lose his clear speech and his ability to control his movements. It is true that alcohol does not affect all individuals equally. In certain cases alcohol is less effective and the individuals concerned are able to control their behaviour. But those who indulge in excessive drinking become addicted to alcohol and are unable to lead a normal life. They lose their money and energy and in the end do not have any means to satisfy their need for alcohol.

D.G. Murphy has described two major categories of alcoholics such as essential alcoholics and relative alcoholics. According to him, "Essential alcoholics are addicts who are likely to begin drinking and to experience intoxication at a relatively early age, who commonly or always drink to intoxication, usually display no clear pattern in their drinking, are unable to drink 'socially' for any length of time, and drink addictively in the absence of discernible factors which might, in the case of other addicts, result in a reactive reaction."²

As regards reactive alcoholics, Murphy states, "Reactive alcoholics are addicts who do not usually exhibit a history of yearly and repeated intoxication, may use alcohol 'socially' for a number of years with possibly and occasional instances of intoxication and no severe 'binge' drinking, may display clearly periodic or continuous patterns in their drinking, and tend to begin addictive drinking relatively later in life than essential addicts, apparently

² Murphy, Donal Gerald, "Psychological Correlates of Alcohol Addictions" (Unpublished Ph. D. Thesis, Columbia University, New York, 1957), pp. 23 & 24, quoted by Coville, et. al. in *Abnormal Psychology*, 1960.

in any reaction to life situations which they have found intolerable." Thus the two major categories of alcoholics are differentiated on the basis of social relations. Essential alcoholics are unable to drink socially and reactive alcoholics enjoy alcohol socially. Secondly in the first case there is no apparent cause for alcoholism. On the other hand, we may find reactive alcoholics trying to escape a painful situation of life.

Drug Addiction—Like alcoholism drug addiction occurs in cases where there is no discernible cause of neurosis. In drug addiction the body physiology is altered and the individual concerned experiences relief from certain personality disturbances. When there is no drug available, the addicted person becomes very quiet. Some of the important narcotic drugs used in the U.S.A. are morphine and cocaine. Morphine is made from opium and is taken by means of injection. Like morphine there is another drug heroin made out of opium. This is also administered by means of injection. In certain cases drugs are taken through smoking, eating and inhalation. It has been observed that drug addiction occurs due to certain disturbance of personality structure. Drug addicts try to evade responsibilities and stress situations. They have also been found to be a member of a gang of addicts where they satisfy their desires for thrill and curiosity. In some cases drug addiction is developed when the individual concerned has been taking a drug as a medicine. It is difficult to treat drug addicts. But certain steps leading to treatment are stopping the supply of drugs and prolonged psychotherapeutic assistance. There should be an organized effort by the society to rehabilitate the victims of alcoholism and drug addiction.

CHAPTER 16

PSYCHONEUROSIS

The term 'psychoneurosis' is sometimes interchanged with the term 'neurosis'. Generally there is little difference between the two. For example Alfred Adler employed the term neurosis for any psychic disturbance not involving a radical disintegration of personality. Neurosis means, "a functional disorder of the nervous system, without anatomical lesion". Karen Horney defined psychoneurosis as psychic disturbance. Freud has thrown great light on the origin, nature and the symptoms of neurosis. According to him, neurosis is the result of some conflict between the Id and the Ego. In other words, neurosis results from a conflict between the individual's conscience of moral self and his instinctual tendencies. The symptoms of psychoneurosis include psychogenically developed, physical ills, anxiety, hypersensitivity, feelings of depression and irritability, unreasonable doubts, obsessions and compulsions, disturbances of sleep and appetite etc.

Anxiety

Anxiety has been considered one of the basic causes of psychoneurosis. Karen Horney has made an intensive study of the nature of anxiety. She uses the term *basic anxiety* for a feeling of helplessness towards a potentially hostile world. But in general anxiety stands for a "ill defined sense of impending danger". A person suffering from anxiety knows that he is disturbed but does not know the precise cause of his anxiety. Thus the neurotic anxiety is different from the normal anxiety on the basis of the obscurity of its cause or causes. In other words, while it is possible to tell the cause of a normal anxiety, the neurotic anxiety cannot be explained and the individual suffering from it does not know its cause.

Fear

Then there is the emotion of fear which is to be distinguished from neurotic anxiety. The individual knows the things he is afraid of. But the neurotic person experiences such fears which he cannot explain. It has been found that neurotic individuals do not

experience fear of one particular thing but rather a group of things. For example a neurotic person may be afraid of the contacts with his fellow beings; he may dread going out on work and he may be afraid of some illness or disease even though there is no such possibility. Thus the neurotic person suffers from such fears whose causes he knows not. He is tortured by the feeling that something bad is going to happen to him. From the above it is clear that the normal fear is different from the neurotic fear. In the case of the normal fear the individual is aware of the causes but in the case of neurotic fear there is no explanation. It is a form of anxiety. In this connection Freud mentions a sort of 'free floating anxiety' which is always trying to attach itself to anything suggesting a possible danger. Thus anxiety when it is highly developed and most conspicuous, it is known in the terms of Freud as anxiety neurosis. Freud considers anxiety neurosis as actual neurosis for in this case there are excessive physiological reactions such as sweating, vomiting, diarrhoea, tremors, etc.

A Neurotic Person

Alfred Adler describing a neurotic person says that the tendency of a neurotic person has to build up defensive or compensatory mechanism. Sometimes he appeases or exaggerate his own inferiority feeling. The excessive need for affection and a striving for power are neurotic tendencies. A neurotic person in need for affection tries to dominate completely the life of the person whose affection he craves. He tries all methods for winning the affection by giving presents and doing favours. The winning of affection by the neurotic person can be compared with the winning of power. As a person suffering from inferiority feeling desires to win power likewise the winning of affection by a neurotic person is also an indication of lack of love in his life. Therefore, he tries to over compensate by showing his own affection for the person whose affection he needs.

OBSESSIONAL NEUROSIS

Obsessional neurosis is also known as compulsion neurosis. In England the term obsessional neurosis is much popular but in America compulsion neurosis is preferred. The term 'obsession' stands for the tendency of an individual 'to do or say a particular

thing or to behave in some particular way'. In obsession the individual feels an uncontrollable urge to do a thing. In other words obsession leads to a compulsive act and the individual finds himself helpless in controlling his undesirable behaviour. So long as the individual tries to control his urge for the compulsive act he is tortured by acute anxiety. In order to free himself from this anxiety he satisfies his compulsive and obsessional urge.

Compulsive Acts

Some of the typical compulsive acts are the excessive washing of the hands, stopping up in the street to count up to some number or the repetition of some particular word or phrase etc. Let us take the case of excessive washing of the hands. It may appear at the surface as a desire of complete cleanliness. But the truth of the matter is that below this desire for complete cleanliness lies the element of compulsion. This may be indicative of the unconscious atonement for a guilt committed earlier. It has been observed that certain individuals who have experienced rigid and repressive measures during their early childhood, develop obsessive compulsive reactions in order to pacify their unconscious anxiety. Studies have shown that the pre-neurosis history indicates a pattern of childhood in which there has been a basic conflict of exaggerate resistance or conformance to adult demands. The history of a neurotic personality suggests that there has been an over emphasis on orderliness and cleanliness. Some times neurotic persons of this category have highly exaggerated conscientiousness and idealism. Such neurotic persons go out of their way to be considerate and kind and suppress their natural feelings of anger. But a deep probe in their minds would reveal that they are dingy and stuff born.

Irrational Acts

In some cases the obsessional compulsive neurosis is marked by a useless or irrational thought which persistently forces itself into the conscientiousness of the individual. The compulsive aspect of this type of neurosis is marked by irrational and useless acts which a person is compelled to carry out. Some of the symptoms pertaining to this obsessive compulsive neurosis have been mentioned above. But there are some other symptoms indicating an obsession: thoughts coloured by obscene language or thoughts about viciously aggrieved acts towards parents, children or spouses

or thoughts about details of perverse sexual acts etc. Some of the common compulsive acts are counting, hand washing, throat clearing, mumbling, ritualistic behaviour particularly in regard to dressing and undressing.

Unconscious Conflicts

As stated above neurotic obsessions and compulsions reduce tension by resolving the underline unconscious conflicts. The expression of obsessions and compulsions serve as a sample of the conflict within the individual. Compulsive and obsessional acts also serve as defenses against the harm being done to the ego. As a defensive measure obsessive compulsive behaviour reduces tension. For example when a person is engaged in obsessional-compulsive washing of hands he is simply trying to keep his mind free from other thoughts. Sometimes obsession is developed as a reaction formation. The individual finds himself obsessively concerned about the very thing he has unconsciously rejected. A typical example is that of a parent who worries excessively about the welfare of a child whom he has unconsciously rejected. It is apparent from the description given above that obsessions mostly function at the thought level and compulsions are expressed in the form of acts and behaviour. But they remain inter-twined and it is extremely difficult to separate the two. That is why we speak of obsessive compulsive neurosis.

The treatment of obsessive compulsive neurosis requires a long range and intensive programme. In many cases the patient has to be shifted to another place where he finds himself less disturbed. Thus the change of environment helps in the treatment of this type of neurosis.

Hysteria

Symptoms of Hysteria—One of the most well studied mental diseases by Freud is hysteria. Before it was assumed that hysteria resulted from a disturbance in the central nervous system. But studies by Freud indicated that hysteria had a psychic origin also. Symptoms of hysteria connected with physiological disorders are quite well-known. In certain cases there is a sensory kind of symptom associated with deafness or blindness. In some cases symptoms of hysteria have a motor character resulting in paralysis and abnormal movements. Then there are vicarial symptoms of

hysteria connected with gastro intestinal disturbances. Besides these physiological symptoms hysteria has certain mental symptoms such as anxiety, amnesia, delirium, somnambulism.

Two types of Hysteria—Hysteria is generally divided into two types. One type is known as anxiety hysteria and the other is conversion hysteria. In anxiety hysteria the main symptom is anxiety. A person suffering from anxiety hysteria experiences anxiety without any apparent cause. Anxiety hysteria is developed due to a number of causes such as unsatisfactory living conditions, unconscious experience of threat, possible loss of status etc. In conversion hysteria there are somatic disturbances. Some part of the body becomes affected through psychic processes. These psychic processes are not apparent. Besides this in conversion hysteria there is little anxiety except that which seems to be connected with the physical disorder like paralysis. One of the fairly common somatic disorders in conversion hysteria is tick. Ticks are of various kinds and their close study has revealed that they have significant psychogenic cause. A tick is a sudden twitch generally in the face or head. In a tick one of the muscles of the face or head suddenly twitches due to some psycho-neurotic disturbance. It may be mentioned here that conversion hysteria occurs in highly immature dramatizing and exhibitionistic personalities.

In conversion hysteria the patient tries to 'convert' his emotional conflict into some physical handicap or illness so that he may be able to avoid the emotional conflict within himself. The symptoms of conversion hysteria are difficult to be distinguished from those of organic illness. Only laboratory tests reveal whether a particular illness is of organic nature or a case of conversion hysteria.

As regards treatment, anxiety hysteria can be treated well. In most cases there is an anxiety reaction due to maladjustment. Thus ordinary cases of anxiety hysteria respond well to therapy. But in chronic and acute cases long term treatment is needed. Cases of conversion hysteria are ordinarily treated by means of suggestion or hypnosis. In some cases drugs are given. In severe cases the treatment is prolonged and the deeper change in the personality of the patient is desired.

Neurasthenia

Neurasthenia is a kind of fatigue neurosis. The patient shows signs of physical and mental fatigue, irritability and a tendency to

be upset by a little disturbance in his environment. Neurasthenics complain of 'nervous irritability'. They show complete lack of self confidence and some of them suffer from the feeling that their memory has been impaired. Besides these complaints, there is also an element of anxiety. According to Freud neurasthenia is caused due to sexual factors like excessive masturbation, nocturnal pollutions.

Traumatic Neurosis

Traumatic neurosis occurs due to some particular psychic or somatic injury. Sometimes an injury to any part of the body also leads to traumatic neurosis. The old idea was a brain trauma resulted in traumatic neurosis. But now it is believed that psychic or somatic injury leads to traumatic neurosis. Some people serving in military are found to suffer from traumatic neurosis. During war a soldier may receive a shell shock and due to it may develop traumatic neurosis. Often a soldier is to face a series of traumatic experiences. Thus he may suffer from traumatic neurosis. In civilian life traumatic neurosis results from a single trauma. Sudden death or severe loss may serve as cause for traumatic neurosis.

Occupational Neurosis

There is another type of neurosis known as occupational neurosis. Normally no occupation can cause neurosis. But it has been seen that in cases of those individuals who are neurotically predisposed some occupations lead to occupational neurosis. Occupational neurosis may occur also in such a case where an individual is forced to accept an occupation against his wish. We may think of a very intelligent and well educated young man who is forced to accept a clerical job. After sometime he begins to complain of having pain in his eyes. This is a case of occupational neurosis for the individual does not like his present occupation and he very much desires to leave it. Due to economic difficulties, that young man is forced to accept that occupation. But unconsciously he is rebelling against it. It may be noted here that occupational neurosis has similarity with hysteria as well as neurasthenia. But according to Thornton 'the occupational neurosis occurs with some frequency among persons who are forced into kinds of work for which they are totally unsuited both by temperament and by natural inclination.

Hypochondriacal Reactions

One of the common neurotic reactions is the hypochondriacal reaction. A hypochondriac has a chronic complaint of illness without any real cause. How does a person develop hypochondriacal reaction, has been studied sufficiently. It has been found that individuals who remain isolated and excessively self centred are prone to be hypochondriacs. Persons who suffer from feelings of inadequacy and lack of fulfilment of their desires specially during their middle age become hypochondriacs. As stated earlier, a hypochondriac shows excessive concern for his health. The symptoms of a hypochondriac include suspicion of suffering from all kinds of diseases and strange explanations of his physiological functioning. A hypochondriac also complains of pains and aches which can be located or remain unspecific. It is necessary to note that hypochondriacal complaints are quite similar to some extent with symptoms pertaining to neurasthenia. Therefore, it is necessary to ascertain positively whether a neurotic patient is suffering from neurasthenia or experiencing hypochondriacal reactions.

The treatment of hypochondriacal complaints is difficult. The main difficulty is that a hypochondriac does not cooperate with a psycho-therapist; The moment the psycho-therapist talks about his psychological experiences and does not refer to the physical complaints, the hypochondriac begins to doubt the affectiveness of treatment. As stated earlier, a hypochondriac neurotic believes that he is suffering from physical diseases and the treatment lies only in curing the physical disease. In other words, he does not want any psychiatric treatment of his illness. Observations have led to the conclusion that women make more hypochondriacal complaints than men.

CLASSIFICATION OF NEUROSIS

There are various classifications of neurosis prevalent. We have considered so far some of the important ones. Recently some of the American Psychological Associations prepared a classification of abnormal behaviour. In this classification neurosis is termed as 'psychoneurotic disorder'. These disorders are due to or associated with psychogenic origin or without clearly defined tangible cause or structural change. The APA mentions these types of psychoneurotic reactions:

Anxiety reaction, dissociative reaction, conversion reaction, phobic reaction, obsessive compulsive reaction, depressive reaction, Asthenic reaction, hypochondriacal reaction and somatization reaction.

Psychoneurosis is entirely environmental in nature. In other words, there are no definite biological or hereditary factors involved in the development of neurosis. The only thing which can be said with definiteness is that with certain individuals there are some temperamental traits which make them liable to develop neurosis. As regards precipitating factors, early childhood experiences leading to conflict or anxiety are important causes.

The general characteristics of psychoneurotic disorders are the presence of anxiety in the individual, inability to function at capacity, rigid or repetitive behaviour, egocentricity, hypersensitivity, immaturity, unhappiness, unconscious motivation and somatic complaints.

We have considered so far neurosis pertaining to anxiety, conversion reaction, obsessive compulsive reaction, asthenic reaction (neurasthenia) and hypochondriacal reaction. Let us now take the remaining type of psychoneurotic reactions.

Dissociative Reaction

Dissociative reaction was previously considered as a conversion hysteria. But recent researches have shown that it is definitely a different type of neurosis. A patient of dissociative psychoneurotic disorder is liable to lose his conscious contact with reality and suffers from a brief loss of memory (amnesia), fuge and in some cases development of multiple personalities and somnambulism has been noted.

The neurotic patients showing dissociative reactions are generally immature, extremely suggestible and have excessive fondness for fantasy in their early childhood. The dissociative reaction is caused mostly by an emotional crisis. The patients wants to escape this crisis by developing unawareness. Amnesia is a type of unawareness which means forgetting. The patient tries to repress the awareness of self and forgets all about his home, name etc. Thus he becomes totally unaware of his previous self. An amnesic can be helped to remember his past through hypnosis or certain drugs which have hypnotic influence.

Fuge—A fuge is a kind of loss of memory which continues for a long time and the patient leaves his original environment and goes to another place without any knowledge of the previous ones and begins to live an entirely new life. Clinical reports are available of such patients who have suffered from fuge and have lived for long periods in a fuge pursuing new occupations and in some cases remarrying. Another type of dissociative reaction is expressed in the form of multiple personality. In this case a patient may develop two or more separate and distinct personalities. Each type of personality has its own typical characteristics. Morton Prince has described a case in which five distinct personalities were identified. But it may be noted that cases of multiple personalities are rare. They are more common in fiction than in real life.

Somnambulism—Another type of dissociative reaction is known as somnambulism. Somnambulism means sleep walking. A person suffering from somnambulism tries to act upon socially unacceptable unconscious impulses in the sleeping state. It has been observed that most of the sleep walking behaviour is simple. But there has been occasional reports of extremely complex behaviour carried out in sleep. The treatment of dissociative type of psychoneurotic disorder takes long time and hypnosis has been found to be useful.

The Phobic Reaction

A phobia is defined as irrational fear of a person, object, situation or act. A phobia is also likely to be developed towards any imaginary aspect of the environment. Thus we have a number of terms describing various types of phobia. Some of the commonly known phobia are claustrophobia (fear of closed-in places), agoraphobia (fear of open places), acrophobia (fear of heights), hematophobia (fear of blood), misophobia (fear of contamination), achlophobia (fear of crowds), zoophobia (fear of animals or some particular animal).

As stated earlier, the phobias are morbid fears. The individual suffering from a phobia recognises that the fear he experiences is irrational but finds himself unable to get rid of it. Here it may be noted that the terms 'phobia', 'obsessive' and 'compulsion' have not always been used in abnormal psychology. According to Morgan, "we believe it would make for clearness if the term 'phobia' were used exclusively for the persistent fear, 'compulsion'

for the irresistible act and 'obsession' for the persistent association"

Causes of Phobic Reaction—As regards causation of the phobic reaction it is believed that individuals who have been timid and suffered excessively from fear and felt inadequate during their early childhood tend to suffer from phobia. Phobia may be developed also due to an intense conditioning experienced during early childhood. It has also been observed that a phobia results from a generalised fear, for example a person may suffer from a feeling of insecurity due to generalised fear and as a result of it may develop later on acrophobia. Thus the individual tries to escape the generalised fear and insecurity by developing the fear of high places. But if the original nature of the generalised fear is rather intense then it may lead to other types of phobias as well. Another reason for the phobic reaction is that the patient tries to use a phobia as a means of protecting himself from the unconscious, undesirable wishes. For example a man may develop a fear of being alone with a woman on account of the possibility of being tempted by her. Since this may be the unconscious wish of the man, therefore, he tries to protect himself by developing the fear of woman. A phobia is likely to be developed as a result of guilt feelings. A person may find certain behaviour unworthy of himself. A typical example of the phobic reaction is the guilt aroused by the anti-social sexual experiences and the individual may develop the fear of a disease like syphilis. It may be noted here that a person suffering from a phobia is generally in a position to attract attention and gain sympathy of the people around him.

Symptoms of Phobic Reactions—As regards the symptoms of the phobic reaction, somatic complaints and anxieties are generally present. Another symptom is that the phobic patient is severely handicapped and he is unable to do his normal work. When he is in a situation where the type of phobia is suffering from, is likely to be experienced, the patient becomes extremely anxious. Psychotherapists treat phobias rather in a short term. But phobias which are of a long duration and have become persistent require intensive psychotherapy.

The Depressive Reaction

Another type of neurotic disorder is expressed in the form of the

depressive reaction in which the patient experiences depression due to a saddening situation like the death of a near and dear one. Thus the depressive reaction is caused by an extreme stressed situation. Persons who have tendencies to become neurotic generally suffer from depressive reaction. The other characteristics of a person likely to experience depressive type of psycho-disorders are feelings of inferiority, hypersensitivity and insecurity. Individuals who have lot of hostility and hatred in their hearts try to hide these feelings by developing neurotic depressive reaction. If an individual loses the psychological support of a person on whom he depends greatly, may also develop depressive reaction.

A patient of depressive type of psychoneurotic disorder may show symptoms of depression and dejection. He does not have good sleep and experiences restlessness. He may also be dull and slow in his physical behaviour. Psycho-neurotic patients of this category lack concentration of mind and experience mental tensions. In such cases some patients try to commit suicide due to extreme dejection. For purposes of treatment electro shock is generally used to make the patients recover from his depression. Electro shock treatment is also accompanied by psychotherapy.

We have considered the psychoneurotic disorders in a general way. Some related forms of this disorder may be taken up in relation with other mental illnesses. In the end it may be noted that psychoneurosis has a very good possibility of being treated. But the difficulty is that a large number of neurotic patients do not agree for their treatment. Cases of anxiety reaction and depressive reaction are easily treated. But those suffering from obsessive compulsive and hypochondriacal reactions take long time for their treatment. Generally in all cases of treatment the patient's cooperation and his willingness to be treated help in his cure.

CHAPTER 17

EDUCATION FOR ADJUSTMENT

One of the purposes of education is to develop in the individual such abilities as enable him to adjust himself in his environment harmoniously. In other words, education for adjustment is concerned with the abilities of an individual to find satisfaction within his cultural and social milieu. Generally the term adjustment has two meanings. Its one meaning is concerned with the process of living in which a person tries to develop harmonious relationship between himself and his environment. For this he tries to modify his needs as well as attitudes so that the points of conflict are avoided. The process of adjustment also requires a change in the environment of the individual. Thus harmonious relationship between the individual and his environment depends upon the nature of adjustment pertaining to the inner life of the individual and his outer environment in which he lives. The second meaning of the term adjustment is related to the condition of harmony and balance achieved by a person. In other words, adjustment stands for the state of one's maturity in personality. Individuals who are well adjusted have mature and harmonious personality.

The Individual and his Environment

In education for adjustment the two polarities of the individual and his environment are important. As stated earlier, the individual has certain inner forces affecting his behaviour. These inner forces, drives, motives etc. relate to his genetic as well as bio-social background. The individual is born with certain temperamental traits as well as inherent potentialities which enable him to meet the exigencies of his social environment. Thus the innate capacities of a person enable him to adjust in a particular manner within his environment. There are certain individuals who have a poor capacity for facing psychological stresses and frustrations. Such individuals are likely to be easily maladjusted. On the other hand, there may be some individuals who have better bio-social background and innate psychological strength to face frustrations and tensions rather in a mature manner. Thus it is said that adjustment

depends on the individual himself to a considerable extent.

The environmental aspect of adjustment is also important. There are certain factors within the cultural and social environment which are injurious for the adjustment of an individual. That environment is considered congenial for the adjustment of the individual which provides facilities for satisfying organic and psychic needs. But unfortunately there are certain societies which have a very rigid code of conduct and exercise strict control over social behaviour of individuals. In other words, autocratic and authoritarian communities create conditions for maladjustment of the individual. It is, therefore, important that such environmental factors as are detrimental for the adjustment of the individual should be controlled and modified. It requires a constant vigilance on the part of the community leadership to oppose such measures, customs and social laws as are likely to mar the harmonious adjustment of the individual. It must be clear by now that maladjustment occurs when there is friction and conflict between the individual and his environment. In other words, the maladjusted person is he who has been unable to establish harmony between himself and his environment.

Individual and Society

Sometimes a mistaken view is expressed in regard to relationship between the individual and society. We all know that society is an aggregate of individuals bound together by a body of traditions, values, customs, mores etc. There cannot be a society without a group of individuals. But the society cannot expect from its individual members a blind belief in its organisation. The individual is responsible for bringing social change when there is a need for it. However, in due course certain vested interests are developed and they try to keep the individual in bondage by asking him to adapt himself with the prevailing social conditions. In other words, individual is made to try for social adaptation rather than social adjustment. Social adaptation is injurious for harmonious development of personality as there is an element of helplessness involved in it. On the other hand, social adjustment is a positive quality. The individual who is educated for social adjustment develops within himself enough sympathy as well as empathy. In other words the individual has a group feeling and shares the joys and sorrows of his group. This is a desirable quality and is vital for the adjustment of the individual.

Needs of Goals

Education for adjustment requires a clear understanding of the needs and goals which motivate a person to behave in a way as he does. In other words, human behaviour is need and goal oriented. That is why, it is said that all behaviour is meaningful. There is some purpose behind it and this purpose is a part of a person's needs and the goals he is trying to achieve. As regards the nature of human needs there is some difference of opinion among the psychologists. One view is that man is need motivated in the earlier phase of life. But later on his values and beliefs are the basis of his behaviour pattern. Nonetheless existence of needs is admitted and different psychologists have mentioned various biological and psychological needs. In other words, there is no one agreed list of human needs. Before we consider the nature and number of various human needs, it is desirable for us to define a need. A need is a "state of tension which leads a person towards activities which will relieve the tension." Another definition of a need emphasizes "a condition marked by the feeling of lack or want of something or of requiring the performance of some action." According to Professor Trow, "a need is a condition of a deprivation of which the individual may or may not be aware the satisfaction of which is beneficial and perhaps necessary for the organism."¹ Thus the satisfaction of needs is necessary for it reduces tension within the individual.

As stated above, needs are divided into two types, biological and psychological. The biological needs are related to the functioning of human organism. If the organic needs are not satisfied, death takes place. The biological needs are for air, water, food, sleep, protection for the young, escape from pain and sexual activity. All these human needs are found in all human beings. But the mode of their satisfaction differs from culture to culture. As regards the psychological needs of the individual, Linton² mentions the following:

- (1) The need for emotional response from other individuals.
- (2) The need for security, both in the future as well as in the present.

¹ Trow. *Educational Psychology* (1950), p. 133.

² *Cultural Background of Personality. Ch. I.*

- (3) The need for novelty of experience or adventure.

Then there is another need not mentioned by Linton is the need for belonging to a group. Gates³ and others have given the following list of personality needs:

“(1) Affection—satisfied by being loved by ones family and being liked by ones friends for what one is rather than for what one does. Such affection is expressed verbally or by demonstrations of loyalty, sympathy, consideration, etc.

(2) Belongingness—satisfied by having a place in a social group of friends and acquaintances and in a close cohesive group, *e.g.*, the family.

(3) Achievement—satisfied by excelling in vocational or avocational activities.

(4) Independence—satisfied by being able to take responsibility and to make independent choices.

(5) Social approval—satisfied by having what one does appreciated and thought well of, admired, followed, etc.; by having a place in society at large, *i.e.*, status.

If we examine the personality needs described by Gates and others we shall find out that the various forms of individual and social behaviour are the results of these needs. The satisfaction of these needs is thus vital for the adjustment of the individual. As regards the mode of satisfaction of needs, it differs from culture to culture. Every culture prescribes its own mode of satisfying organic and psychic needs and it is in this process of satisfaction that we discover the role of culture in the development of human personality.

As regards the recognition of a need it is important to know its characteristics. Otherwise one may confuse a real need with something which appears like a need but actually is not a need. Gates and others have pointed out that all needs have the degree of tension corresponding to their strength. In other words, greater the need greater is the tension. If the need is weak the tension will also be weak. The significant characteristic of a need is that when it is latent the individual is not consciously aware of it. But at the same time this thinking is affected by the latent need and some kind of

³ *Educational Psychology*, p. 618-19.

tension is produced. The third characteristic of a need is that it grows in intensity and produces an unpleasant feeling as well as tension. At this stage organic needs become conscious but the psychological needs are not necessarily consciously experienced by the individual. The fourth characteristic of all needs is the awareness of it by the individual. This is the active stage of a need and the person is directed toward the goal of his need. The fifth and final characteristic of all needs is the actual satisfaction which is gained by achieving the goal connected with a need. This reduced tension and produces pleasant feeling in the individual.

Nature of Goals

At this stage it is desirable to discuss the nature of goals. "A Goal is the end-activity or consummatory response that terminates a sequence of motivated behaviour." In other words, goal is the end product of the efforts for satisfying a need or needs. According to Gates and others a goal is "an activity or state which to some extent satisfies an individual's need or needs." In this way a goal is the embodiment of satisfaction of a need or needs. But it is not possible for an individual to be clearly aware of his goals. Sometimes some goals are not recognized by an individual with the result that he goes on making all kind of efforts to reduce the tension in his mind. One purpose of education is to help the individual to perceive his goals clearly so that he can modify his behaviour or learn new behaviour in order to realise the desired goals. In the adjustment of the individual it is important that the goals are clearly understood.

In the study of goals there is a difficulty. Since goals are primarily perceived by the individual concerned, it is not possible for others to make a correct judgement regarding the goals of a person. In other words, in the perception of goals there is a subjective element involved. This creates the difficulty. So the reliable method of determining the nature of goals is to observe the sequence of behaviour directed towards a goal. As stated earlier in connection with the characteristics of needs, it will be helpful to follow the sequence of goal directed behaviour. Take for example the case of an individual who goes to a restaurant. It will not be possible for another person to say before hand that this person has entered the restaurant only with the purpose of eating something. We can only know about it when he places his order. The individual concerned may ask for a cold drink if he is thirsty or some food if he is hungry. In this way

we can find out the nature of his need whether it is related to the satisfaction of thirst or the satisfaction of the hunger. This illustration points out the fact that the nature of a goal is determined on the basis of the nature of behaviour one performs in order to satisfy a need or needs.

In the education for adjustment we have to consider another aspect of goals which is related to an individual's awareness of his goals. The point is that it is not possible for an individual to be aware of all the goals that he is striving for. This has been well explained by Shaffer and Shoven. According to them⁴ "...no one has an innate knowledge of his goals. A hungry infant does not 'know' that eating will relieve his discomfort; he is merely restless and tense. Many important goals remain similarly unconscious throughout life. An anxious adult who is experiencing difficulties of social adjustment is usually unaware of exactly what is bothering him. His drives tend towards adjustive goals, but he does not have a clear idea of what these goals are. He only knows that certain acts of aggression, defense, or withdrawal make him vaguely feel better. The criterion of a goal is, therefore, not awareness but drive reduction." In this way the goals are an integral part of an individual's adjustment because they are desired things which satisfy the individual's needs and reduce his tension.

The Adjustment Process

The adjustment process takes place within environment which is of social and cultural nature. There may be some other aspects of environment which contribute or thwart the adjustment process of the individual. But the main point is that the adjustment process cannot take place in a vacuum. It always occurs within environment of the individual. That is why we cannot afford to ignore the nature of environment in the study of the problems of adjustment.

The individual tries to adjust with the environment in which he has to live and work. If the environment is threatening for the individual and creates barriers in the satisfaction of his needs and achievement of his goals then he may try to either remove the barriers or modify his own needs and goals. In other words, he is compelled by his social milieu to modify his needs and goals in order to adjust in his society. That is why Lewin is of the view that the needs of

⁴ *The Psychology of Adjustment*, p. 95.

the individual are to a great extent determined by his social environment. The social environment is composed of values, customs, manners, and folk ways. The individual has to live in terms of the value system prevailing in his society. Therefore, the adjustment process is always in terms of the cultural and social values. The development of the child as well as his socialisation is always in keeping with the cultural demands. Thus in the adjustment process there is a kind of interaction between an individual's behaviour and his social environment.

Sources of Frustration

It is desirable to consider the sources of frustration in the context of adjustment process. There are certain types of situations which appear frustrating and create problems of adjustment. The nature of the environment, specially the social milieu, may have such elements as are frustrating. It has been observed that sources of frustration are of the following five types :

- (1) Physical sources of frustration
- (2) Social and societal sources of frustration
- (3) Economic sources of frustration
- (4) Personal sources of frustration.
- (5) Sources of frustration pertaining to needs, goals and values.

There may be other sources of frustration. But the five sources mentioned above are comprehensive enough to take care of other factors as well. As regards the physical sources of frustration, it may be noted that there are certain physical factors present within the environment of the individual which are annoying and create trouble for the individual. The climate of a place may be unhealthy. The rivers and mountains as well as the physical features of a region may be such as are thwarting for the individual. Thus the physical factors of the environment produce difficulties in the life of the individual and thereby become sources of frustration. Likewise social and societal factors also become sources of frustration. There are certain social customs and manners which limit the self expression of an individual and do not permit him to be himself. It is true that every society has a code of conduct as well as a value system. But in certain societies the code of conduct and the value system may be very rigorous so much so that the individual

feels handicapped. His initiative is lost and he finds himself in chains of such social attitudes as are inimical to his adjustment. In certain societies economic conditions are also a source of frustration. People are not allowed to have as much comfort as possible on account of the prevailing economic system. In a society where free competition is practised there is no economic safeguard for those who are unable to compete. Thus a kind of monopoly is developed and the economic power is concentrated within the hands of a few individuals. Such an economic state of affair is a source of frustration for the individual.

There are certain sources of frustration which are found within the individual himself. There may be certain physical defects in the individual which make him to develop a feeling of inferiority. A person who considers himself ugly suffers emotionally. Likewise an individual may have such types of needs and goals as are unrealistic and, therefore, they cannot be satisfied and realised. Moreover, in some cases an individual may have a very high level of moral standard. He may expect such moral behaviour from people as is not possible under the circumstances of life prevailing in a society. Thus the individual emphasising a very high level of moral standard feels frustrated and considers that the whole society is rather degenerated. Thus the purpose of education for adjustment is to provide the individual with a realistic approach to life and a scientific understanding of his environment. Without this the individual remains immature and faces a number of frustrations all along his life.

The Unconscious Source of Frustration

At this stage let us also consider the unconscious source of frustration. Freud has described the nature of the unconscious and pointed out its place in the mental life of the individual. According to him the unconscious is a very potent factor of motivation. In one of his papers, Freud writes, "The most immediate, most easily discerned and most comprehensible exciting cause of the onset of neurotic illness lies in that external factor which may generally be described as frustration. The person was healthy as long as his erotic need was satisfied by an actual object in the outer world; he becomes neurotic as soon as he is deprived of this object and no substitute is forthcoming. Happiness here coincides with health, unhappiness with neurosis". It is evident that frustration has an unconscious source and it leads to neurosis. But it is to be remembered

that there are unresolved conflicts present in the unconscious and they try to get resolve by motivating the individual to do certain things unconsciously. Commenting on this aspect Brown observes, "the most important discovery of modern psychodynamic theory is that of unconscious conflict and the mechanisms of its resolutions . . . unconscious conflict plays an important role in the growth of 'normal' personality. . . .⁵ In fact, much of the behaviour of the 'normal' adult is determined by unconscious conflict. . . ." In other words, there may be certain unconscious conflicts in the mind of the individual which may be a source of frustration. It is, therefore, necessary that the individual is allowed to resolve his conflicts by means of self education and re-education.

It is important to bear in mind that all frustration is not undesirable. It is helpful sometimes to experience a little frustration for it helps the individual to marshal his powers in facing a difficult situation. It is the view of some psychologists that a little amount of frustration serves a motivation. Not only a little frustration serves as a motivation but also it helps the individual in attaining a mature personality. The idea is that a person must experience all aspects of life. One who has never faced a frustrating situation, can never be confident and self reliant. Thus it is clear that some experience of frustration is an essential part of growing up. That is why in child training it is emphasised that parents and teachers should not always be soft to children. It is advisable for them to train children in social habits, manners and customs by adopting such rules as are sometimes unpleasant for them. In this way education for adjustment is a series of situations which are pleasant as well as unpleasant in which an individual finds himself and learns to adjust by gaining a variety of experiences.

⁵ J. F. Brown, *The Psychodynamics of Abnormal Behaviour*, p. 170.

CHAPTER 18

EDUCATION AND MENTAL HEALTH

The aim of education is all round development of human personality. It strives for making an individual a well adjusted being in his society. Mental health is also concerned with the harmonious development of personality. According to Hadfield, "mental health is the full and harmonious functioning of the whole personality". In other words, the purpose of mental health is almost the same as that of education. That is why education and mental health are being studied together with a view to understanding the various factors that affect the mental health of the child and the teachers.

FACTORS AFFECTING MENTAL HEALTH

There are various factors affecting mental health. The environment of the child has a significant part in the promotion of his mental health. Studies have shown that social and economic conditions affect the development of personality. For example Plant found that due to constant financial difficulties experienced by certain families, children born in those families develop a 'hard' personality. In other words, children of economically distressed families show less of harmony and resilience than those of well-to-do families. Thus we find that social and economic conditions influence the development of personality. In our country children of lower castes experience difficulties in their personal and social adjustments. It will be interesting to find out the level of mental health among untouchables and the high castes. It can be presumed that individuals belonging to lower castes and lower economic group generally have poor facilities for mental health.

Parent-Child Relationships

From the time of birth and onward the child is influenced by the quality of relationships which he has with his parents. If a child is very well loved and cared for he develops harmonious personality. It has been observed that the parent-child relationships are marked by various degrees of acceptance and rejection. Some parents love

their children too much and some do not care at all. These are the two extremes of parent-child relationships. But normally when a child is accepted by his parents and particularly by his mother he develops self confidence. Freud observes, "I have found that those persons who consider themselves preferred or favoured by their mothers manifest in life that confidence in themselves, and that unshakable optimism which often seem heroic and not infrequently compel actual success"¹. Flugel studied the family on psychoanalytical basis and found certain significant features of parent-child relationships. He observes:

"Parents who are too severe, too expressive or even too careful as regards the up-bringing of their children, will—especially if the latter happen to possess strong tendencies to self assertion—often bring about a state of revolt against their own authority, in which all that may be good and wise in that authority is deliberately neglected or condemned, since the children have grown to look upon their parents as tyrants and taskmasters rather than as helpers and protectors. A stern and bullying father, a nagging or overanxious mother, will thus frequently produce a rebellious son or daughter, who will respect neither the advice or commands of the parents themselves nor those of their (mental) substitutes in later life.

"A high degree of initiative self confidence or masterfulness in the predominating parent may easily cause the child—unless himself endowed with these characteristics to the same or to an even greater degree—to abandon himself habitually to the supremacy and initiative of the parent and thus in time to develop a lack of those qualities which distinguish the personality of the latter"².

Rejection

In the parent-child relationships rejection occurs when one or both parents do not fulfil the needs of the child and give him proper love and affection. It may be noted there that at times it is quite possible to find some parents who do not love their children but at the same time do not reject also. There are the exceptional cases. By and large parents who positively dislike their children are to be

¹ The Interpretation of Dreams.

² The International Psychoanalytical Library, 1843, p. 46.

considered as rejecting parents. There are some typical behaviours of a rejecting parent. Sometimes a parent may openly say that he is fed up with the child. A rejecting parent is very harsh in his treatment with the child. He is very strict and always criticises the child. He has no word of praise for him. If the child does something wrong he always rebukes and punishes him. Some rejecting parents want to get rid of their children by placing them in a boarding house or sending them away to the place of a relative. In this manner the child is rejected.

There are certain subtle methods of rejection employed by some parents. For example subtle rejection may be expressed in the form of emphasis being laid on high standards of achievement. A rejecting parent may expect from the child such a performance or achievement which is beyond his capacity. In another case rejecting parent may avoid saying anything favourable and may compare him unfavourably with other children. He may point out to his child that look the son of so and so has secured very good marks in the examination and you have not done very well. Thus the child is made to feel inferior. Another subtle expression of rejection is observed when a parent feels surprised over the achievement of his child. A case of subtle rejection is also seen when some parents try to tell that they are doing a lot for thier children. In other words, they are sacrificing everything for the benefit of their children. There are the subtle forms of expressing rejection.

Causes of Rejection—Why some parents reject has been studied by psychologists. They have tried to find the origin of rejection in the parents. One of the major causes of rejection is unhappy marriage. If a husband and a wife develop unhappy and unsatisfactory marital relationship their children are likely to be rejected. Rejection occurs when one of the parents find the child interfering in their family life. For example, if the mother pays too much attention to her son, the husband may feel ignored and unconsciously dislike the child. In some families parents reject the child of the unwanted sex. For example the parent may desire to have a son but a girl is born. The girl child is thus rejected. In some cases immaturity of fathers and mothers in the art of parenthood leads to rejection of the child. Other cases of rejection are as follows:

- (1) The unattractiveness of the child.

- (2) Refusal by mother to accept the feminine role. In other words, the presence of the child makes the mother conscious of her being woman. Thus she rejects the child.
- (3) Rejection by the father due to his suspicion about the child being his own.
- (4) Resemblance of the child with some member of the family who is hated by the parents.
- (5) Parents deprived of love and affection in their own childhood, are unable to give love and affection to their children.

The Rejected Child—The rejected child has a typical pattern of behaviour. First of all he tries to get as much love and affection as possible. He employs various methods to gain attention also. As he is not loved and wanted he becomes hostile to others. Thus he tries to express his hostility in various forms. The rejected child has a feeling of being worthless and has lot of anxiety. He becomes aggressive and quarrelsome. He develops the habit of telling lies and in the course of time he becomes a delinquent. Many of the rejected children become emotionally cold to kindness and sympathy shown to them. Thus we find that a rejected child develops such a pattern of behaviour which leads him towards maladjustment and delinquency. But it has to be kept in mind that the behaviour of a rejected child has to be studied in relation to the behaviour of his parents, because it is quite possible that some children who are not actually rejected may show such behavioural patterns as are expressed by rejecting children.

Over Protection

Mental health of the child is adversely affected by over protection on the part of parents. The process of over protection is said to occur when a mother tries to love and care for her child excessively. Thus over protection is mostly practised by mothers. There are very few cases of over protecting fathers for they do not spend enough time with the child.

The concept of over protection was first clearly defined by David Levy. In 1929 Levy read a paper before the Second Colloquim on Personality Investigation which was published in American Journal of Psychiatry next year. According to Levy the factors responsible for maternal over protection are as follows :

1. Long period of anticipation and frustration during which the woman's desire for child is thwarted by sterility, miscarriages or death of infants.
2. Conditions in the child that makes him less likely to survive than other children: physical handicaps, illnesses which frighten the mother and the like.
3. Sexual incompatibility with husband.
4. Social isolation: lack of common interests between husband and wife; lack of other social contacts.
5. Emotional impoverishment in early life : unhappy childhood particularly from the point of view of individual's satisfaction.
6. Development of dominating characteristics through the assumption of undue responsibility in childhood and the continuance of this role in marriage.
7. Thwarted ambitions.

The effect of over protection of child is varied. According to Levy, "so far, it appears that where maternal over protection is primarily and successfully dominating in character submissive traits result—obedience, authority acceptance, dependence on others; in boys, effeminacy. When primarily indulgent in character, aggressive traits result—authority reception, commanding, bullying and 'lime light' behaviour." There have been some studies of parental over protection and it has been found that the same pattern of behaviour occurs as described by Levy.

Home Conditions

Besides rejection and over protection on the part of parents there are certain home conditions which affect the mental health of a child. It has been found that in families where there is lot of quarrel and lack of understanding between the adult members children have poor mental health. A study by Bolles, Metzger, and Pitts indicated that there was a positive relationship between early home background and personality adjustment. For purposes of this study they interviewed 142 mentally ill women and 153 normal women. It was found that only 1% of the normal women had very unfavourable home and the 17% of the mentally ill women had this type of home. Favourable home was found in the case of 50% of normal women and 25% of mentally ill women. It may be mentioned here that

those homes which had such conditions has produced insecurity and instability were considered unfavourable. Thus on the basis of this study it can be assumed that lack of security and stability in the home affected personality adjustment and mental health. It may be, however, noted that there are other factors also affecting mental health. As is indicated by the study referred to above, we find that 25% of the mentally ill women had favourable home. The question may well be raised why is it so. The answer is that there are other factors like the community influences.

Community Influences

The home and Community environment affect the mental health of the child. If the community in which a child is born does not provide recreational facilities, it is likely to affect the mental health of the child. It has been found that communities which provide satisfactory recreational facilities as well as freedom to their children the mental health of the children is generally good. There are certain conditions within the community which affect the mental health. These are: "(1) the extent to which recreational facilities, social centres and social agencies exist, (2) the degree of freedom allowed to children by community folkways, (3) the disparity in economic levels, (4) the extent of race prejudice, (5) the extent of tolerance or intolerance of religious sects."³ It has also been found that in well organised communities mental health is good. In communities which are disorganised, mental health is poor. Thus we find that the organisation of the community is also an important factor relating to mental health.

Maslow and Mittelmann studied in detail the forces damaging the security feelings of the child. According to them these factors are cultural as well as situational and related to early childhood. A detailed list is given below:

(1) *Cultural Factors* : sub-cultural conflict; colour, class, racial or religious, prejudice; poverty, a chronic unemployment. (2) *Factors in early childhood* : parental rejection or neglect (lack of love); parental over protection; broken families, tension, quarrelling, or divorce of parents; parental dishonesty and insecurity; identification with insecure individuals; social isolation; inadequate or incorrect

³ Gates & Others, *Educational Psychology*, 1948, p. 711.

sex education; traumatic experiences; unjust, inconsistent, or excessive physical punishment. (3) *Current situational factors* : chronic conflict; chronic frustration; humiliations and ridicule; irregularity, inconsistency, injustice, cruelty; sibling rivalry.

They found that there were factors affecting the self-esteem of the child. These factors are also listed under the three categories as given above : (1) *Cultural Factors* : authoritarian family structure, authoritarian education in the school. (2) *Factors in earlier childhood* : dominating over protection by the parents; domination by others; rivalry with older siblings; chronic invidious comparisons with others by parents; over severe discipline and punishment; lack of praise, respect, appreciation; favouritism in the family; identification with weak individuals; lack of independence, long continued dependence ; punishment by terror or shock. (3) *Current situational factors*: organic inferiorities; inadequate achievement, failure; feeling of difference from others; snobishness or rejection by other children; inability to meet cultural demands for masculinity or femininity; over severe ideals, feeling of sin or guilt; being regarded as a baby.

Maslow and Mittelmann also studied the process of socialisation and the related factors affecting the mental health of a child. They again described these factors from the cultural situational and childhood angles. The cultural factors pertaining to socialisation of the child and which affect the mental health are social disorganization, sub-cultural loyalties and poverties. In our own country the caste system and the communal prejudices affect the socialisation of children. The poor economic conditions prevailing in large areas of India are also responsible for damaging the mental health of children. As regards the current situational factors Maslow and Mittelmann pointed out that identification with wrong people, boredom and lack of play opportunities are responsible for damaging the socialisation of the child. Then they discuss factors in early childhood which damage the socialisation of the child. These factors are: pampering, over-indulgence, lack of discipline; direct acquisition of bad habits from others; lack of positive training in etiquette, manners etc. and training in foreign folkways. Thus we find that there are various factors which affect mental health of the children. It is the responsibility of the society as well as the school to create such conditions as are likely to promote good mental health in children.

Mental Health in the Class-room

There are certain class-room practices which are injurious to mental health. It is, therefore, desirable to take into account certain aspects of school life and class-room atmosphere in order to foster good mental health among the school children. The first important point is that the child should consider his school as an extension of his home. There should not be a big gap between the home and the school atmosphere. What is more important is the feeling of belongingness which the child should experience in his school. In other words, the teacher ought to be a kind of substitute parent in giving love and affection to the child. It is also desirable that the school should satisfy the normal psychological needs of the child. There are some school practices which are not helpful in the development of good mental health. For example a lot of emphasis placed on examination and competition is damaging for the mental health of the child. It is true that there should be a healthy competition among the students of a class. But it becomes a cause of anxiety when there is excessive emphasis on grades and marks. In other words, the feeling of over competition is not in the interest of students for it develops in them such attitudes as are undesirable from personal and social point of view. It has also been observed that there are some students who are slow in learning and therefore, they remain much behind the average students of the class. For them the feeling of excessive competition is too much and they tend to be backward. Likewise there are some students who are above average and can learn a lesson very quickly. They find themselves in a situation which is not challenging enough in terms of their ability. In brief the problem of individual differences present a complex situation and it has to be tackled carefully so that the mental health of the children is not adversely affected.

Besides the examination the curriculum is also defective. It does not take into account individual differences and does not satisfy the psychological needs of the child. Thus mental health problems are created due to a rigid curriculum. The ideal thing is that the curriculum should be framed in a manner that the students find it satisfying as well as challenging enough to study.

Class Management—Class-management is another factor. Some teachers are very strict. They want to maintain pin drop silence in their classes with the result that students are not permitted to feel free. There is a tension in the atmosphere. The teacher becomes

the symbol of the fear and anxiety for the students. This is bad for the mental health of the children. It is, therefore, desirable for a teacher to develop healthy and harmonious relationship with his students so that he is not considered as a source of terror but as a friend and a guide. The teacher ought to be helpful and friendly and his students must feel free to consult him in their difficulties. A study by Hart showed that the best liked teachers by students were friendly, helpful, cheerful, patient and fair. They also took interest in their pupils as well as had a good understanding of them. Those teachers who were unhelpful, unfair, unreasonable, partial, sarcastic and nagging were least liked by their students. Thus it is apparent from this study that teachers who have a warm and friendly personality are able to create a relaxed atmosphere in their class-room. On the other hand, an angry, anxious and nervous teacher develops a tense atmosphere within his class. The nature and techniques of punishment used by teachers also affect the mental health of children. There are various types of punishment employed by teachers. But experience as well as observation have shown that severe punishment is damaging for the mental health of children. Recent studies have provided evidence in support of the effectiveness of reward as an incentive for learning. From the mental health point of view the teacher ought to use reward of various kinds in place of punishment in order to make his students learning a lesson. Successful teachers have been found using reward as a technique in their class control and teaching. Teachers who are less successful generally use punishment in order to teach students. Thus it is apparent from the mental health point of view that a teacher ought to use technique of reward through social approval, granting of certain privileges and assistance etc.

Mental Health of the Teacher

If the mental health of the teacher is poor it is bound to affect the mental health of the school children. It is, therefore, necessary that factors affecting the mental health of the teacher should be considered. It is, however, important to note that the teacher is an adult member of his culture and society. He is affected by his family and community. His mental health is a product of his upbringing, education and culture. Thus the mental health of the teacher is affected by the mental health of his family, community and culture. If the social conditions are frustrating and unrewarding they are

bound to create mental health problems. The problem of unemployment and under employment is a serious one. Teachers of primary and secondary schools are economically poor and they are unable to satisfy all their needs. Thus they have to live under the stress of poverty, ill-health and below the average standard of living. Teachers of colleges and universities are comparatively in a better position than the teachers of primary and secondary schools. But on the whole teachers are not well paid and they find a lot of difficulties in their social life. It is quite apparent that the teachers of a society which does not pay them well are liable to suffer from anxiety and frustration.

Work Load—The work load of teachers in primary and Secondary schools is rather heavy. The student population has increased tremendously with the result that a teacher has to look after a large number of pupils. Overcrowding in schools has affected the mental health of teachers. Then there is the feeling of insecurity among the teachers with regard to their service. Teachers of private and aided institutions are victims of dismissal without due cause. The management is partial and there are various considerations of caste, community, religion, etc., that affect the security of service. So long as a society permits such unhealthy practices in the employment of teachers it is bound to affect diversely their mental health. Not only teachers are poorly paid but also they do not have any public recognition and respect. It is really a sad commentary upon our society that it gives more respect to a moneyed man than to a teacher. A teacher is expected to be an ideal person. He is not permitted such liberties as are enjoyed by any adult member of a society. In other words, a teacher ought to be a man of all virtues and should possess no failings howsoever small. Thus a teacher finds himself all the time under public examination and scrutiny and this is a source of tension for them. It may be noted here that a teacher ought to be a man of character and he should be a good model for his students. Nonetheless to expect perfection from a teacher is to expect too much and in certain societies too much is expected from teachers. This is bad for their mental health.

In order to promote the mental health of teachers there is a need for the improvement of service conditions and social recognition. The teacher ought to be given due respect by the public and there should be organisation to look after his interests. Above all there is a need for such social values as are helpful in the development of

mental health of teachers. The society should not be rigid and exceedingly orthodox. It must be taken into account the changing conditions of time and provide for the teachers such opportunities for self-expression as are likely to contribute towards their mental health.

MENTAL HEALTH PRINCIPLES

Before we conclude the discussion of education for mental health it is desirable to acquaint ourselves with some of the basic mental health principles. Without due observation of these principles by an individual as well as society it will not be possible to promote desirable mental health. These principles can be equally applied by teachers in teaching children and providing them with a philosophy of life. It may be noted here that these principles are also related to adjustment processes of an individual. From this point of view mental health and adjustment processes are closely connected. They are complementary to each other.

Self-knowledge

One of the ancient teachings is that man should know himself. Socrates emphasised the maxim "know thyself". What is the real meaning of this maxim? Is it merely to know oneself in terms of his name, place of residence, caste, creed, sex etc. or is it something more than this? It is quite obvious that the principle "know thyself" stands for not knowing oneself superfluously but deeply. In other words, a man ought to know his real nature which is according to idealistic philosophy as well as the oriental tradition, divine. A man who has a knowledge of himself is aware of his weaknesses as well as potentialities. Thus he has neither an exaggerated view of himself nor suffers from inferiority complex. Education ought to enable a person to know himself in a realistic manner. This knowledge helps him in his personal and social adjustment as well as promotes good mental health.

Self Acceptance

The second important principle of mental health is that of self acceptance. One should accept himself as he is. Sometimes it is found that certain individuals are greatly dissatisfied with their physical appearance and regards themselves ugly. They forget the

fact that the basis of beauty is not physical but spiritual. In other words a handsome person is he whose behaviour is good, whose heart is good and who is guided by goodness for all. Thus real beauty is inner not outer. A man does not become beautiful by artificial means. He has to be full of good ideas and thoughts which are free from anger, fear and hatred. Self acceptance also involves the ability to recognise ones limitations and act accordingly. A person who does not act in terms of his limitations is liable to feel frustrated. So self acceptance is really the acceptance of ones limitations and the determination of act according to ones ability. There are certain things which are beyond the ability of an individual to achieve them. It is no use going on trying for them and failing all the time.

Be Thyself

The third important principle is that a person should "be himself". In other words "be thyself" is a very useful proposition for mental health. It means that one should be natural and not artificial in his manners and living. A person who is spontaneous and natural in his dealings with others does not suffer from mental tensions. Tensions occur when an individual tries to be something else from what he really is. It is to be noted here that every person has a personality which is unique and the quality of uniqueness has to be preserved. This is possible only when the individual is natural and does not try to immitate someone else. So these three principles, know thyself, accept thyself and to be thyself are extremely helpful in the personal adjustment of an individual.

Self Control and Harmony

In a society we have to deal with others and our social relationships depend to a great extent upon our ability to develop self control and harmony. There is a great need for charity and tolerance, friendship and cooperation in social relationships. In a society where these qualities are found in abundance mental health is generally good. In the education of an individual it is desirable to emphasize these qualities of charity, tolerance, friendship and cooperation. Sometimes unknowingly prejudices are developed against certain castes and communities. These prejudices are invariably harmful for mental health. In the education of children due care should be taken to avoid such experiences as lead them to develop prejudices.

The individual can adjust with his society harmoniously provided he has learnt to control and express himself in a socially approved manner. For example, self control requires that one should not lose his temper but be quiet and understanding. In other words, if a person learns to control his emotions and appears reasonable he has good social adjustment and mental health. Likewise a person should also learn such arts as provide him good self expression. One of the functions of arts is to sublimate undesirable emotions. That is why in modern education there is a considerable emphasis upon the teaching of music, painting and other allied arts. Every person has to work for his living. A person who has got a satisfying means of livelihood generally possesses good mental health. It is, therefore, necessary to be engaged in such work as has value for the individual concerned. A man who works only for money without due regard for his interests and attitudes is liable to suffer from mental tensions. His performance will be poor and he will be extremely bored. That is why in mental health it is emphasised that one should be engaged in a task which is meaningful and worthwhile for him.

Another important thing in this connection is that one should attempt a task which is within his power to complete. Taking up such a work which is beyond an individual's means is not desirable from the mental point of view. This is because failure leads to frustration. Thus one should avoid frustrating situations and be engaged in such tasks which can be done successfully. A task well done has its own reward for it brings inner satisfaction to the individual. These are some of the basic principles of life which ought to be taught to students so that they become happy individuals, good citizens and efficient workers.

CHAPTER 19

GUIDANCE IN EDUCATION

The provision for educational and vocational guidance in schools and colleges is comparatively a recent phenomenon. It is indicative of a genuine concern for purposive education or education for life. As White has said, "there is only one subject-matter for education, and that is Life in all its manifestations". So we find now-a-days the purpose of education being determined in terms of an individual's needs, purposes, goals, of his life and society. Education endeavours to provide such knowledge, skills and understandings as enable a person to be a useful member of his society by doing his best.

Meaning of Guidance

There is a lot of confusion with regard to the meaning of guidance for the guidance movement started with a vocational bias. So some people think guidance to be simply an effort to provide an individual with a job. But guidance has a very wide meaning and application. It embraces all aspects of life. At the same time it tries to enable an individual to select a vocation or profession according to his unique genius. Briefly the meaning of guidance is "a personal service which is designed to help an individual to solve problems that arise in life." A comprehensive definition of guidance considers it as "the process of assisting the individual to choose, prepare for, enter upon and progress in courses of action pertaining to the educational, vocational recreational and community service group of human activities."¹ Arthur J. Johns observes, "guidance involves personal help given by some one: it is designed to assist a person to decide where he wants to go, what he wants to do or how he can best accomplish his purpose; it assists him to solve problems that arise in his life. It does not solve problems for the individual but helps him to solve them."² He further states that, "the focus of guidance is the individual, not the problem; its purpose is to promote the

¹ *A Manual of Educational and Vocational Guidance*, 1957.

² *Principles of Guidance*, 1945.

growth of the individual in self direction. This guidance may be given to groups or to individuals but it always is designed to help individuals even though they be in a group."³

The Criteria of Guidance

The meaning and purpose of guidance are further cleared when we consider the criteria of guidance. According to Brewer the criteria of guidance should be as given below:

1. The person being guided is solving a problem, performing a task, or moving toward some objective.
2. The person being guided usually takes the initiative and asks for guidance.
3. The guide has sympathy, friendliness, and understanding.
4. The guide is guide because of superior experience, knowledge and wisdom.
5. The method of guidance is by way of offering opportunities for new experiences and enlightenment.
6. The person guided progressively consents to receive guidance, reserves the right to refuse the guidance offered, and makes his own decisions.
7. The guidance offered makes him better able to guide himself."⁴

Thus it is clear that the criteria of guidance depend upon the individual himself and his abilities to solve his own problems. In other words, it is not the purpose of guidance to make an individual a parasite but to enable him to be a self-reliant person capable of solving his problems.

EDUCATIONAL GUIDANCE

There are various types of guidance such as educational, vocational, recreational etc. The educational guidance is primarily concerned with advising students in their choices of subjects and helping them to solve their such difficulties as are related to their school adjustment and studies. Educational guidance aims at making

³ *Ibid.*

⁴ *Education as Guidance*, 1938.

a student learn in terms of his abilities so that his achievements are according to his native and acquired endowments.

It has been that sometimes students are compelled to choose certain subjects on account of economic prospects after education even though they may not have an aptitude for learning those courses. This is really an unfortunate situation. It creates a tremendous burden on the mind of a student for he is forced to learn something in which he is not interested. In such a situation the need for educational guidance is felt. The teacher ought to guide his pupils in the choice of their school subjects so that they may not be placed in a predicament. In order to offer guidance to his pupils in their educational problems the teacher has to develop good inter-personal relationship with his students. He was also to be a skilled counsellor and should possess good knowledge of various scholastic tests.

In educational guidance there are various factors involved. The home environment of the pupil, his family profession, the aspirations of his parents, his own aspirations, the nature of the school where he goes for education and the qualities of teachers teaching him. Thus the problem of educational guidance is a complex one and cannot be solved without full cooperation of the parents, the community, the school and the teachers. All these persons and agencies should keep the well-being of the pupil as a goal. It is not what they desire to make a student so important, as it is what the student wants to be himself. It is true that the student concerned may not have the correct idea of his capacities and abilities as well as his limitations. The purpose of educational guidance is to enable a student to adjust his aspirations in terms of his potentialities. If a person aims very high without keeping in view his potentialities and limitations he is likely to feel frustrated. Thus one of the main purposes of educational guidance is to enable a student to set a realistic goal for himself.

The Teacher-Counsellor

In modern education guidance is an inseparable part. In other words, guidance and education cannot be separated. As observed by W. D. Wall, "...guidance is implicit in education—whether we are considering the guidance of parents, of school children or of adolescents at the threshold of their career."⁵ At another place

⁵ *A Manual of Educational and Vocational Guidance*, 1957.

he states that the "concept of guidance as an intrinsic aspect of education must also include an analysis of the environment, in terms of the needs of the children, the attempt to determine how these needs may be supplied by the family, by the school or by some other means and the necessary help to parents and teachers which will enable them to discharge their functions."⁶ Thus it is apparent that in modern education guidance is invariably present and, therefore, the teacher of to-day has to be a counsellor as well. As a matter of fact guidance and counselling go together. We cannot think of guidance without counselling. This has been very well noted by Ruth Strang when she mentioned four general trends in guidance. The first trend is indicative of greater participation by teachers in guidance programmes. Previously guidance activities were carried on by trained professionals. But when education was accepted as guidance teachers were necessarily required to participate in the guidance programmes for their pupils. "The second trend is towards developmental guidance. This is in part an effort to apply the guidance process to the whole personality of the individual rather than to fragmented elements such as his vocation, health, education etc."⁷ The third trend in guidance is indicative of interest in client-centered counselling. In other words, counselling has been considered an essential feature of guidance. The fourth and final trend in guidance is towards "the team approach." This is due to the complexity of modern life and in order to understand the needs and problems of an individual it is necessary to study him in such a manner as reveals his total picture and thus provides satisfactory guidance and counselling.

The teacher-counsellor has to combine two functions of teaching and counselling. But as a matter of fact successful teaching is indirectly a kind of counselling also. A successful teacher knows his pupils, their needs and problems and tries to become their friend, philosopher and guide. This is possible when there is a harmonious teacher-pupil relationship and students feel free to come in contact with their teachers. The school has to provide facilities for a teacher-counsellor so that he may function effectively. It requires decrease in his teaching load and more time for counselling. Every teacher cannot be counsellor. The teacher-counsellor has to be trained

⁶ *Shiksha*, Oct. 1958.

⁷ *Ibid*.

in guidance and counselling for he must be better equipped than average teachers with a view to assist his pupils in solving their adjustment problems and difficulties pertaining to their studies. It has been observed that there are mainly three types of problems that are usually brought up before a teacher-counsellor. These problems are not isolated but inter-related. Firstly the problem may be related to school and curriculum. Secondly it may be an aspect of vocational interest and thirdly it may be a pointer to the problem of adjustment. All these problems pertaining to school, curriculum, vocation and personality adjustment can be tackled if the teacher-counsellor knows his pupils personally and has time to perform the following functions⁸:

1. Administering psychological tests.
2. Collecting and maintaining pupil's personal data.
3. Disseminating vocational information and information about different types of courses at school and in technical training institute; cooperating with the local agencies in collecting such information.
4. Individual counselling of pupils who have difficulty in choosing curriculum courses or in taking up employment on leaving school.
5. Assisting Youth Employment Services in placement of pupils in various jobs.
6. Follow up work with a view to assessing the outcome of guidance services in regard to the pupils who have received guidance.
7. Interpreting the results of psychological tests provided he has the necessary psychological training.

Compilation of Pupil-data

In order to make the programme of counselling and guidance effective it is desirable to compile pupil-data in the school and this work should start right from class VI so that there is a cumulative record of every pupil in the school. Generally the following types of data should be collected about every student:

1. General data of the pupil such as name, age, address, school attended, attendance.

2. Home and neighbourhood conditions.
3. Appearance, physique, health and medical history.
4. Intellectual abilities including his general mental ability, special aptitudes and interests.
5. Qualities of disposition and personal and work habits.
6. Aptitude to and his interest in the corporate life of the school and participation in its activities.
7. Attainments in school work—both academy and practical.
8. Information about pupils plans and objectives.

It is important to bear in mind that the pupil-data should be compiled with due care from year to year. There should be reliable and valid tests of mental ability aptitude, interests, personality etc. so that the data collected is reliable and valid. It is helpful to have a 5-point rating scale in order to have an estimate of a pupil's abilities and personality traits. The 5-points in the scale may be named A B C D and E. While rating the abilities and personality traits of a pupil it is important to take the following precautions⁹:

1. We must limit the appraisal or rating to those qualities of personality which appear overtly in inter-personal relations. From this point of view it is easier to judge a quality like sociability or industry compared to a trait like egoism or self-confidence.
2. The estimates of ability, interest and personality traits should be based upon observations of pupils behaviour in as wide a variety of situations and activities as possible.
3. The qualities to be assessed are analysed into concrete and relatively specific aspects of behaviour and judgements are based on these.
4. The variable to be assessed such as persistence, discipline etc. should be clearly defined and different grades of it illustrated by brief concrete descriptions.
5. The teacher should guard himself against the "generosity error" in assessment. This is the tendency to rate an individual on the desirable side of the average.
6. Similarly the "Halo error" is to be avoided. If the teacher is carried away by the global impression created by the child

⁹ *Shiksha*, Oct. 1958.

in his estimation of different traits he will be subject to this error. In using the rating scale it is a good plan to rate all the children in a class on one quality at a time rather than rate a single child on all the qualities.

7. Only those teachers should rate the child who have had the most opportunity to observe the individual in the situations in which he would manifest the qualities to be rated.

VOCATIONAL GUIDANCE

Interest and Aptitude

Another important purpose of guidance is to enable a pupil to find for himself such a vocation as is according to his interest and aptitude. This is necessary in a modern and developing society where a number of vocations are available. For individual efficiency and social progress it is most desirable that a person should be engaged in a work which he really likes to do. Thus the purpose of vocational guidance is to help an individual in finding a suitable vocation for himself. The General Conference of International Labour Organisation in 1949 described vocational guidance as "assistance given to an individual in solving problems related to occupational choice and progress with due regard to individual's characteristics and their relation to occupational opportunity." From this description it is apparent that vocational guidance is directed towards assisting an individual in such a manner as enables him to choose the right type of work for himself. But it should be kept in view that in vocational guidance only the interest of an individual is not taken into account. The interest of the society is also an important factor. What kind of workers a society requires at a particular period of time and its development has to be constantly kept in view. For example in our own country the personnel needed during the period of 3rd Plan has to be considered while offering vocational guidance. At the moment a large number of technicians, engineers and skilled workers are needed. In other words, there is a great demand for students who have studied science, technology and engineering.

Two Aspects

Thus the problem of guidance has two aspects—one the individual and the other social. The needs of an individual and the demands of

the society must be in harmony. That is why sometimes vocational guidance is said to be the process of "fitting round pegs into round holes and square pegs into square holes." This description of vocational guidance in terms of round pegs and square pegs is not totally correct for the process of guidance is a dynamic one. It is not so mechanical and lifeless as it is sometimes assumed to be. As a matter of fact the purpose of vocational guidance is to enable a student or a young man to have a correct evaluation of himself. At the same time it helps the student in his self growth. As we know, every person is unique and his psychological make-up is also different from others. Keeping in view the uniqueness and the factor of individual differences a vocational guidance worker tries to provide such counselling as is in the interest of the individual concerned and his society. It has also to be borne in mind that the process of vocational guidance requires a long period of time. It may start with the education of an individual and be a part of his educational guidance indirectly. But as the individual progresses he is gradually enabled to look for a suitable vocation in terms of his goals of life.

The Procedure of Vocational Guidance

We have acquainted ourselves with the purpose of vocational guidance and the nature of its process. But it has its own procedure. This procedure has certain steps which are to be followed by a vocational guidance worker. For example in Uttar Pradesh the Bureau of Psychology provides vocational guidance for High School and Intermediate students. The Bureau follows a procedure which is three sided. In other words, the procedure of vocational guidance has a three sided approach which requires the guidance worker to function in close collaboration with parents and teachers of students. In other words, the teacher counsellor or school psychologist, parents and teachers are involved into the problem of vocational guidance.

The programme of vocational guidance begins with a talk to the students of class X and XII by the school psychologist. Generally the Principal presides over this meeting. In this talk students are told about the facilities available for them for vocational guidance and they are also oriented towards various occupations. Thus students come to know about various opportunities open to them. Then the guardians of the students are approached through a

guardian's schedule which is sent to them through their wards. The guardians are requested to provide information about their wards more particularly about the environmental conditions, their economic and social status and other important items mentioned earlier in connection with the pupil-data. Thus from the guardians information about their wards is collected. This is necessary for there is no provision as yet in the U.P. schools to maintain the cumulative record about every pupil. In order to have sufficient data for vocational guidance the Bureau of Psychology prepared the guardian's schedule and also a school schedule. With the help of the school schedule it is possible to compile a sort of cumulative record which provides information not only about a pupil's health, socio-economic status of his family etc. but also the teacher's estimate regarding his personality make-up, his interests and hobbies, his abilities and aptitudes as well as his academic achievements in various subjects. In this school schedule the teachers are required to indicate the type of course a student should follow and the vocation for which he is suitable.

A number of tests are used in order to have a complete knowledge about a student's psychological assets. He is given a vocational preference inventory which enables him to indicate his vocational preference. These efforts are made to collect information about a student's vocational preferences as well as his interests and aptitudes. The whole procedure is a complex one requiring great care and skill on the part of the school psychologist. The data pertaining to vocational guidance requires insightful interpretation which cannot be done by a person who is not trained in techniques of guidance.

Discovery of Vocational Ability

In vocational guidance efforts are made to discover vocational ability of students. Though there are a number of psychological tests and inventories made for this purpose it is desirable to observe pupils in different situations. According to Brewer¹⁰ vocational ability may be discovered by the following procedure:

1. Through practical studies and methods of teaching that show connections with vocational life.

¹⁰ *Education as Guidance*, p. 310.

2. Through definite exploratory courses, offering sample tasks from a number of the common occupations.

3. Through tests drawn from sample tasks in occupational life, measuring the abilities developed in planned or casual experiences.

4. Through student activities, requiring work resembling those of certain occupations.

5. Through clubs, scouting, and recreational experiences outside the school, or activities in the home.

6. Through counselling and questioning, which may bring to light interests and abilities.

7. Through standardized contacts, allowing 'frontseat' observation of work, with possible participation in simple tasks.

8. Through working experience, with or without pay.

Guidance in Primary School

As stated earlier guidance is inherent in the nature of education. So when the child starts his education in the primary school guidance also takes place, the purpose being to help the child in his adjustment with the school and the curriculum. It is also the purpose of guidance at the primary school level to make the transition of the child from his home to school as smooth and harmonious as possible. The vocational interest is not important at this level. Guidance at the primary stage is in terms of individual and social adjustment. It also helps the child in his personality development and scholastic progress.

The method of teaching children at the primary stage is mainly based upon play and activity. The child is encouraged to learn by playing and doing. Thus the method of teaching in the primary school is activity-centred as well as child-centred. The child is encouraged to do such things as enable him to learn social skills and acquire understanding of his social environment. According to A. J. Jones, "guidance in the elementary school, by whatever name it may be called, is the foundation of all later attempts to help individuals; which gives the pattern for later guidance, for it is unitary in character and is directed toward the individual with a problem, and not toward the type of problem that faces him."¹¹ In other words, guidance at the primary stage takes into account the child as a whole and seeks full cooperation of his parents and community.

¹¹ *Principles of Guidance*, p. 293-94.

Guidance in the Junior High School

A child generally enters the Junior High School at the age of 12. This is the period when signs of adolescence begin to appear. Thus the Junior High School is concerned with such boys and girls as are experiencing the onset of adolescence. In other words, the problems of Junior High School students are pertaining to their transition from childhood or early adolescence. In India the Junior High School students are in the age-group of 12 to 14 and they begin to experience social pressures and inhibitions. They find that there are certain social customs and manners which they ought to observe. Thus their freedom is curtailed and they are expected to behave like grown up boys and girls.

The problems of Junior High School students are numerous. They are related to school and studies. Some time a student is unable to adjust in the new environment of his Junior High School. Likewise there may be problems pertaining to his emotional and social needs. At the Junior High School stage students begin to show interest in certain occupations and vocations. It is desirable to guide them at this stage so that they are able to have a correct view of various occupations.

In America many Junior High Schools have a plan for group guidance. The purpose being to help pupils to understand their new environment and the level of learning expected from them. There are guidance courses for Junior High School students which generally deal with the following topics: (1) Orientation to the school; (2) Improvement of study habits; (3) Improvement of personal adjustments; (4) Development of social relationships and responsibilities; (5) Self-appraisal; (6) Formulation of life goals; (7) Development of plans for education and other activities to attain these goals; (8) Preparation for the next school; (9) Tentative selection of an occupation. It is evident that these topics cover almost all problems usually faced by Junior High School students. It is the purpose of the guidance at the Junior High School level to enable students to develop such attitudes as are helpful in their personal and social adjustment. They are also encouraged to examine their aims and objectives of life and education from time to time. Thus full effort is made to guide them with a view to helping them to solve their problems by means of their own efforts.

Guidance in Secondary Schools

Guidance in the secondary schools is mainly vocational in nature. It is assumed that the pupil has learnt enough about his personal and social adjustment and is now in a position to pay more attention towards his future vocation. So at the secondary school stage students are advised to make proper choice of subjects for their study so that whatever they learn contributes towards their vocational preparation. The students are allowed to acquaint themselves with various occupations and to examine for themselves the chances of promotion and progress available in different fields. At this stage efforts are made to discover a pupil's real interest and aptitude so that his education is helpful in his occupational preparation. From time to time certain occupations are discussed in the school with a view to point out their importance, nature of work, income available and preparation required. As we know there are certain occupations which have high social prestige and payment. In our country Indian Administrative Service, Indian Police Service, Indian Engineering Service, Indian Forest Service, Indian Medical Service and some others of this category are held in high esteem for these services have high scales of pay and prestige. On the other hand, there are professions which are not so well paid and, therefore, are not in great demand. Nonetheless no profession or occupation by itself is good or bad. It all depends upon the kind of workers engaged in particular profession or occupation. Any thing well done is most desirable. The important thing is that a person is engaged in the kind of work which is suited for him. All these aspects of vocational guidance have to be emphasized at the secondary school level.

It is desirable to enable the secondary school students to visit factories, shops and offices in order to see for themselves the nature of occupations. Film and radio can also be gainfully employed in providing useful vocational information. Suitable pamphlets pertaining to different occupations should be prepared and made available to secondary school students. The vocational guidance given to secondary school students should cover the following aspects of a vocation¹² :

- A. Suitability for the occupation, involving ability, physical

¹² *Ibid.*, p. 359

- and mental characteristics aptitude.
- B. Service to society.
 - C. Interest in the occupation.
 - D. Satisfaction in the work.
 - E. Financial returns, immediate and future.
 - F. Opportunity for employment.
 - G. Opportunity for advancement.
 - H. Health conditions.
 - I. Social conditions.

Placement

It is not only the vocational preparation that the secondary school should try to offer to its students but it must also endeavour to find a job for them. In other words, there should be a placement service for students going out of the school. The school ought to maintain contacts with employers and find out from them the kind of personnel they need. Thus a secondary school ought to provide placement service to its students. It has to be kept in mind that the placement service is not purely a personal affair though it enables an individual to find a job and thus feel secure economically. Nonetheless it is also a service to the society. Society makes progress when there are right type of workers for different jobs. Many a time it has been observed that wrong people are selected for certain jobs. The provision for placement service eliminates the possibility of wrong appointment.

A secondary school student should be told all about the things needed in order to get a job. How should he prepare to meet his future employer and how should he face the interview board. All these things are important and they need preparation. So vocational guidance at secondary school stage does not end merely by providing information about different vocations but it also includes the problem of placement. Not only the school should help a student in getting a job but it should also make a follow-up study of that student. It would be in the interest of an educational institution to keep in touch with their past students and maintain a record of their work.

Guidance in College

The purpose of guidance at the college level is also to help students in their adjustment for after leaving a secondary school they enter in

a new type of institution which is though similar to their old school in some respects is also new and different in other respects. They are in a college where students from different schools come for study and they are not known to one another. So the problem of social relationships is there. How to help college students in their social relationships is one of the main purposes of guidance at the college level. Then a college student may have personal problems pertaining to his family and finances. It is the responsibility of guidance worker in a college to assist student in solving his problems. It has also been found that some of the college students do not have a definite goal or goals before themselves. They seem to drift from school to college without any purpose. It is, therefore, desirable to make every student decide the goal of his life and the kind of work he desires to do after leaving the college. This requires a proper assessment of one's abilities and limitations. In other words, guidance at college level should enable a student to develop an insight in order to understand himself correctly.

Like a secondary school a college should also provide vocational guidance. There should be a placement service and opportunities should be provided to students to get detailed information about those occupations in which they are interested. It would be desirable to arrange meetings with possible employers. Eminent persons from different occupations should be invited by the college to address the students about their occupations and opportunities for self growth and development. In other words, guidance at college level can be meaningful for the students as well as the society.

Like education guidance is a life long process. It should enable an individual to develop the ability to guide his own affairs and solve his own problems. One of the purposes of guidance is to help the individual to help himself. In other words, guidance aims at developing self-reliance, initiative, leadership and making an individual useful for his society. The guidance movement is strong in America and some other western countries. But in India it is still in its infancy and with the rapid industrialization of our country there will be a greater need for educational and vocational guidance. For this purpose it is desirable to make studies of interests and aptitudes of high school students. Their education should be in terms of their interests and aptitudes which is not so at present. The country can no more afford to permit students to make wrong choices of subjects for their studies and thus waste their time, energy and money.

CHAPTER 20

STATISTICS IN EDUCATION

MEASUREMENT

Need to Measure

The necessity to measure intelligence and achievement of a large number of pupils in a comprehensive way stresses the importance of statistics in the field of Educational Psychology. Statistics has evolved various suitable methods through which the scores of a large number of pupils can be handled in a scientific and comprehensive way. Nowadays psychologists are to measure intelligence and achievement of not only hundreds but at times thousands of pupils within a definite period of time.

When the scores of thousands of pupils are seen, no definite opinion could be expressed at a glance as all scores are scattered in a haphazard manner. It is very difficult for any expert to reach any definite conclusion. It is, therefore, very essential to work out a way through which all the scores can be arranged in a understandable manner. The importance of any score depends upon the way it can be compared and contrasted with rest of the scores. Thus it is highly important to adopt some suitable statistical methods to make a bundle of scores meaningful.

Ranking

The pupils make scores if they are subjected to any test at a particular time with specified procedures. They make scores according to their achievements on a test. If one looks at a large number of scores placed against the names of the pupils, it is difficult for him to reach any conclusion. It is very difficult at the same time to compare them with any particular score because there is a lack of arrangement. Such data can be called "raw data" as it has not been arranged in a scientific manner. The raw data should be handled in such way that the relationships between scores could be established. But the manipulations should be made keeping in mind the objective of the test and the scientific possibilities of their arrangement.

Any one who is interested to know his exact position among those who appeared on the test can not be satisfied unless the whole data are ranked. If it is known to a student that he has obtained, say, 90 scores on the test out of the total of 100; his performance on the test no doubt is excellent but it can not be said whether this is "good" or "poor", until all other scores are known. His position in his group may be the highest or the lowest or somewhere in between, determined by the scores of other pupils. The most suitable and scientific way to find out the relative position of each pupil is to arrange all the scores in order from the lowest to the highest. It is called ranking. The scores can be given their due rank that is highest score should be given the rank of 1, and the next highest 2 and so on. In this way a student can find out his place in his group after his score is ranked. Otherwise one can arrange all scores by putting lowest score on the bottom, the next on its top and so on.

There is every likelihood that a large number of pupils have gone on the test. On such occasions there may be more than one pupil who have obtained the same score. In ranking they will get the same rank.

TABLE 1

SCORES OF A MENTAL TEST ARE ARRANGED IN RANK ORDER

<i>Score</i>	<i>Rank</i>	<i>Score</i>	<i>Rank</i>	<i>Score</i>	<i>Rank</i>
120	1	104	7	90	13
118	2	102	8	80	14
114	3	100	9	74	15
109	4	99	10	72	16
105	5.5	97	11	70	17
105	5.5	95	12	68	18

In table 1, the scores of 18 pupils have been ranked. It can be seen that one who has obtained 120 scores on the test has been given first place, while the other, who has obtained only 68 scores, has been assigned 18th rank that is lowest among all. Thus the ranks of the pupils have been decided according to their performance on the test. But there can be some pupils who may get equal scores on the same test. For instance, in the table 1, 5th and 6th pupils scored 105, therefore

both of them are given the same rank of 5.5. Though the 6th pupil has been given a rank of 5.5 but the 7th pupil has been placed on a rank of 7. In other words, with successive decrease in the scores there is corresponding decline in rank from highest to lowest.

On certain occasions the scores are arranged according to percentile ranks. But its interpretation is based upon a group of 100. For example, if a student of 8th class has obtained a percentile score of 65, it means there are 35 above him and 64 below him.

Frequency Distribution

It is well known that ages, heights and weights of individuals vary to a great extent from one other. It is, therefore, in favour of interested persons to group them by assigning arbitrary limits. Any numerical characteristic like age, height or weight from the lowest to the highest can be broken in different groups by putting arbitrary limits. In this way the units which are similar to some extent will be put in one class and so on. If one has to group, for instance, the scores of pupils ranging from minimum 75 to the maximum 112, it will be convenient to fix the boundary lines on numbers 79, 84, 89, 94, 99, 104, 109 and 114 scores. The boundary lines are known as class limits. The numbers grouped between two limits are called class intervals, and the number of observations within a class interval is known as its frequency.

It will be convenient if we look into the arrangement of Table 2¹.

TABLE 2
SCORES OF A MENTAL TEST

Score	Score	Score	Score
85	95	78	81
101	95	95	87
102	94	86	83
96	96	75	105
102	77	91	83
85	84	84	88
101	96	81	101
88	112	85	

¹ William Clark Trow. *Introduction to Educational Psychology*, p. 102.

Any unit may be chosen for the class intervals. It depends mainly upon the number of observations and also upon their nature. But usually it is convenient to arrange the data on the basis of the any one the units among 3, 5, 7, and 10 etc. But for making the data more comprehensive any other unit can be chosen.

The scores of Table 2 can be grouped by selecting a class interval of 5. One tally put against a class interval represents one score, two tallies two scores and so on. One score is tabulated only once in any of the class intervals. The frequency of a particular class interval can be found by making the final total of all tallies in that column as shown in Table 3.²

TABLE 3
TABULATION SHEET

Scores	Tabulation	Frequency (F)
110-114	/	1
105-109	/	1
100-104	/ / / /	5
95- 99	/ / / / /	6
90- 94	/ /	2
85- 89	/ / / / / /	7
80- 84	/ / / / /	6
75- 79	/ / /	3
		N = 31

The frequencies are shown in column 3 of Table 3. Symbol (f) is read to represent these frequencies. The method which has been used to present the scores of Table 2 is called *frequency distribution*. It is called frequency distribution because it works out the basis to distribute the scores from low to high. It can be seen clearly how the large number of scores of Table 2 have been arranged in Table 3 in a comprehensive way. The number of class intervals are determined according to the nature of inquiry. It has been usually found that the large number of frequencies concentrate toward the centre while fewer number towards the end. These distributions can

² *Ibid.*, p. 103.

be represented by graphical methods for better comprehension.

GRAPHICAL REPRESENTATION

In graphical methods quantities or numbers are located on a surface. But these are represented with respect to two or more dimensions as the case may be. The rectangular coordinates are used in which two straight lines namely xx^1 and yy are drawn intersecting each other at right angles. These are two axes, the horizontal line xx is axis and the vertical line yy is known as Y axis. The point at which these two axes meet each other is O , which is known as point of origin. When the distances are measured towards the right or upwards from O , they are taken as positive, while the distances from O towards left or downwards are negative.

Any scale can be chosen according to the convenience. Mere study of quantities will never bring out that much of relations which is expected from the graphical representation of the same quantities. The mutual relationships between two types of variables can be effectively shown through graphical representation. The whole thing can be understood at first sight which were not clearly visible earlier.

Histogram

Let us see how a graphical representation makes things more comprehensive and clearer than a row of numbers. The scores of a large number of people can be shown in different ways by means of a histogram. In the table 4 (see p. 338) the scores of 109 persons are put in class-intervals along with their frequencies.

The data of Table 4 will be used in constructing the histogram. One has to draw two straight lines cutting each other at right angles and thereby getting one horizontal straight line known as x axis and one vertical straight line as y axis. The scores are arranged on x axis and frequencies on y axis.

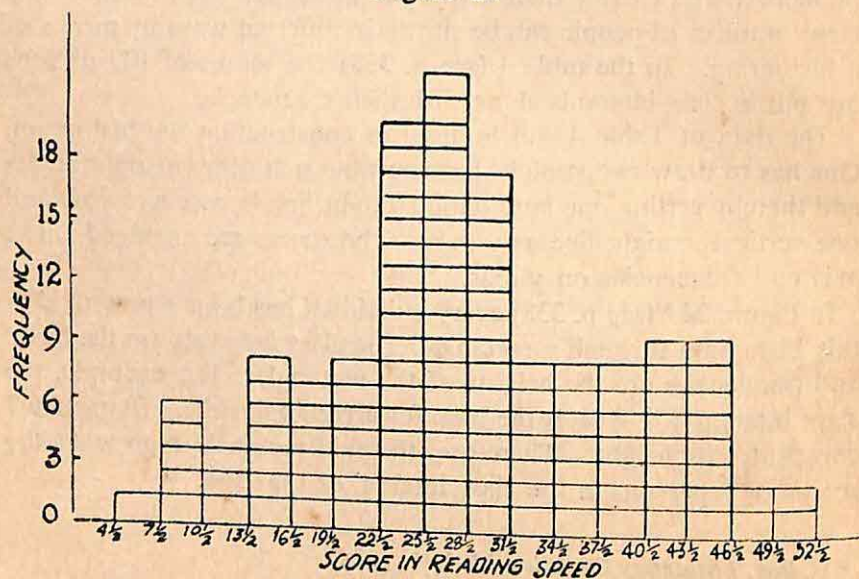
In Figure 24³ (see p. 338) every individual has been represented in this histogram through a rectangle. The class intervals are the bases and frequencies are the heights of the rectangles. For example, the class interval $13\frac{1}{2}-16\frac{1}{2}$ is the base for a rectangle where frequency 7 constitutes its height. Therefore, the said rectangle represents the scores of 7 persons in the class interval of $13\frac{1}{2}-16\frac{1}{2}$.

³ Walker, *Elementary Statistical Methods*, p. 38.

TABLE 4
SHOWING ARRANGEMENTS OF SCORES OF 109 PERSONS IN
CLASS-INTERVALS AND THEIR FREQUENCIES

Scores	Frequencies
50-52	2
47-49	2
44-46	7
41-43	7
38-40	6
35-37	4
32-34	5
29-31	14
26-28	18
23-25	16
20-22	7
17-19	5
14-16	7
11-13	3
8-10	5
5-7	1
Total	109

Figure 24



Histogram: Distribution of scores of 109 4th grade children.

In the same way all other rectangles are constructed. Therefore, class interval is the base and its respective frequency is the height of a rectangle. In this way, the large number of scores of any test can be shown and any one can observe the characteristics of the whole group at a glance. If for instance, the pupils have obtained very good marks on the test the scores will pile at the end of the x axis and the low performance will be followed by concentration of scores at the beginning of the x axis. But in most of the cases usually the piling up of scores is very clearly seen in the centre of the distribution while low and high scores are distributed at the beginning and at the end of the distribution.

Frequency Polygon

The scores of pupils on a test may vary to a great extent. Therefore, in such cases the rectangular presentation is not very suitable. The irregular distribution of any group can be represented through frequency polygon. It is constructed by connecting the mid-points of top horizontal lines of the histogram. The mid-points of the rectangles are extended to the base which falls at the mid-points of the two rectangles outside the histogram. These two rectangles are based upon imaginary class intervals whose frequencies are zero. The triangular parts which are excluded from the histogram are equal to those which are outside the histogram and not included in the polygon.

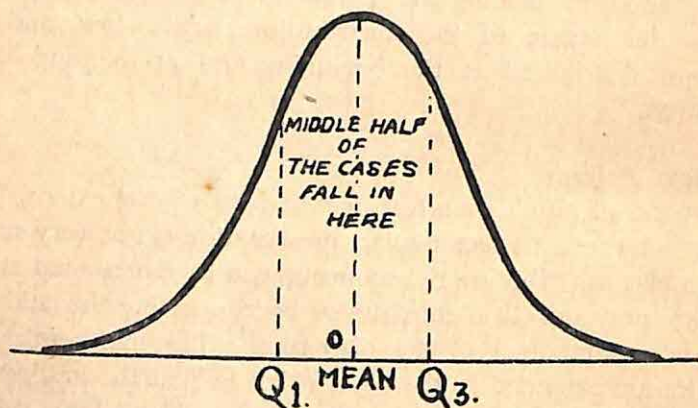
If the scores are represented through the frequency polygon, the characteristics whether the performance of the group is good or bad, can be ascertained at a glance. It becomes easy to find the scores which are obtained by most of the pupils and at the same time the scores rarely obtained by some of them.

In any examination if the papers are favourable to students and their marks are represented through frequency polygon, its shape will be symmetrical. If most of them have secured second class marks and a very few of them have obtained very high or very low marks, it will take the shape of a normal frequency curve. Therefore, the shape of the polygon is determined by the distribution of marks in the group. The results of any two examinations can be compared by frequency polygon.

The Normal Probability Curve

While studying the histogram and frequency polygon we have seen that in most of cases the scores of pupils tend to cluster at the centre of the scale. It has also been observed that there is marked decrease of scores from the top point of the curve. Therefore, it seems that in any group there are few whom we can call "very bad" or "very

Figure 25

*Normal Probability Curve*

good" according to their scores on a test, while most of them are of average type. But there are instances when the curve is bell shaped which depends upon the distribution of scores. If a perpendicular is dropped from the highest point of the curve upon x axis, it divides the curve in two similar parts.

The distribution of scores of any homogeneous group will take the shape of the above curve (Fig. 25). For instance if the distribution of scores are represented of pupils of similar age, it may take the shape of normal probability curve. The bell-shaped curve is called normal curve or normal probability curve. Every increase in the number of homogeneous group shall lead the curve toward normality.

In this type of representation the curve eliminates the effects of accidental variations and emphasizes normal tendencies. If such bell-shaped curve has resulted from any representative sample scientifically chosen, it can be held true for the whole universe. In tossing of the coin the success and failure is 5 and 5 in ten times on

this assumption the normal curve can be used to represent a frequency distribution.

CENTRAL TENDENCY

The calculation of averages gives simple expression to a complex group. It helps in the representation of the group by a measure of central tendency in which all scores tend to cluster around it. It gives a clear idea of the characteristics of a group. The measure of central tendency makes it possible to compare the performances of more than one group. It is very difficult to talk about the ages of people in a country. But if the average age is known the definite conclusions can be drawn and it can also be compared provided the average age of any other country is known.

The Arithmetic Mean

Arithmetic mean is the quantity or a score which is obtained by dividing the sum of the scores in a distribution by their number. All items are treated alike and each is taken into consideration only once in calculation. It is a satisfactory statistical measure around which all scores of the group tend to cluster.

The arithmetic mean can be calculated by the following formula:

$$a = \frac{\Sigma m}{n}$$

where:

a = Arithmetic Mean

m = Summation of measurement

n = Number of items

For instance, in a class there are 10 students whose scores are 75, 10, 15, 20, 25, 40, 60, 35, 65 and 55 on a test. The arithmetic average or mean of their scores can be calculated by applying the above formula. According to the formula:

$$= 75 + 10 + 15 + 20 + 25 + 40 + 60 + 35 + 65 + 55$$

$$= 400$$

$$N = 10$$

$$\therefore \text{Mean} = \frac{400}{10}$$

$$= 40$$

Therefore, the arithmetic mean of the scores of 10 students is 40.

Apart from this there are other methods of computing the arithmetic mean. They can be applied according to the form of data and convenience.

Median

Median is another measure of central tendency. It is the value of that item which is in the middle of the series and thereby dividing it in two equal parts. Among these two parts the values of all items in one part are lesser and the values of all items in another part are greater than the value of the item which divides the series. The series may be arranged either in ascending or in descending order according to convenience and the value of the middle item is median. For example, there is a class of 51 students and they have been asked to stand in order of their height. According to above statement the height of the 26th student shall be called median height of that class. This method can be symbolically expressed in the following way:

$$M = \text{size of } \left(\frac{n+1}{2} \right) \text{th item}$$

Here the median is represented by M and the total number of item is expressed by n.

If this formula is applied in the above example, it gives the following result.

$$M = \text{size of } \left(\frac{n+1}{2} \right) \text{th item}$$

$$M = \text{size of } \left(\frac{51+1}{2} \right) \text{th item}$$

$$M = \text{size of 26th item.}$$

In this way the median height of the class comprised of 51 students is expressed by the height of 26th student. But it is convenient to compute the median by frequency distribution. The following

formula can be used to compute the median.

$$M = 1 + \left(\frac{\frac{n}{2} - F}{fm} \right)^2$$

M = Median.

I = The lower limit of the class interval in which median is expected.

N = Number of items.

F = The cumulative frequency of the class interval which is just below to that class interval in which the median is expected.

= The frequency of the class interval in which the median is expected.

= Length of the interval.

TABLE 5
THE COMPUTATION OF MEDIAN OF A FREQUENCY
DISTRIBUTION

<i>Class interval</i>	<i>Frequency</i>	<i>Cumulative frequency</i>
70—74	4	18
65—69	1	14
60—64	2	13
55—59	2	11
50—54	2	9
45—49	1	7
40—44	6	6
N = 18		

In this frequency distribution the calculation of median is as follows :

$$N = 18$$

$$N/2 = 9$$

$$F = 7$$

$$I = 49.5$$

$$fm = 2$$

$$i = 5$$

$$\text{Therefore } M = 1 + \left(\frac{\frac{N}{2} - F}{fm} \right) i$$

$$\begin{aligned} \text{Median} &= 49.5 + \left(\frac{9-7}{2} \right) 5 \\ &= 49.5 + 2 \\ &\quad \frac{-}{2} \times 5 \\ &= 49.5 + 5 \\ &= 54.5 \end{aligned}$$

Median is understood very easily and is very useful for practical purposes. It is popular because the extreme cases have no effect on it. But it is not very suitable in the study of the data which are widely spread and are irregular.

Mode

Mode is another measure of central tendency. In a distribution the measure which occurs most frequently is called mode. Precisely it is the value of the item in a variable which is repeated most when it is said that in a particular class most of the students have secured 45 marks in a test, it can be put in another way by saying that the modal marks obtained by that class of students is 45.

It is not very difficult to locate the mode as it has occurred most frequently in a series or in a frequency distribution. In a frequency distribution the mode is expected in that class interval which contains largest frequency. If two class intervals have the same number of frequencies and it is greater than in any other class interval of the distribution the mode may fall at the midpoint of the entire range covered by such intervals. At times difficulties have been faced in locating the mode due to numerous irregularities in the table. In such cases the groups should be widened until the modal group presents itself. In simple cases the following formula can be used for calculating the mode:

$$\text{Mode} = 3 \text{ Median} - 2 \text{ Mean.}$$

Though the mode can be located by observing the series or frequency distribution, it is not always definite that a mere look

or observation is enough for locating it. Therefore, grouping is essential in the cases of irregular distributions. It is easier to find out the mode in a continuous series by using the following formula:

$$Z = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} (l_2 - l_1)$$

Mode is represented by Z , l_1 and l_2 represent the lower and upper limits of the modal group; stand for frequencies in the modal group, next lower group and next higher group respectively.

This formula can be used to find out the mode of a continuous series in which the modal group is clearly visible. Let us find out the mode of the frequency distribution in Table 6.⁴

TABLE 6
FREQUENCY DISTRIBUTION OF MARKS IN ECONOMICS

<i>Marks-grouped</i>	<i>Number of students (Frequency)</i>
0- 5	4
5-10	6
10-15	10
15-20	16
20-25	12
25-30	8
30-35	4

This table indicates that the highest number of students are in the class interval of 15-20 as compared to number in any other class-interval. It means the class interval of 15-20 contains the highest number of frequencies and therefore, it is the modal group in which the mode lies somewhere.

By applying above formula we get:

$$\begin{aligned} Z &= 15 + \frac{16-10}{32-10-12} (20-15) \\ &= 18 \text{ Marks.} \end{aligned}$$

⁴ Ghose M. K. and Choudhary S.E. *Statistics : Theory and Practice*, p. 70.

Mode can be understood by a common man. It is useful to understand the existing trend of any particular thing. It is not very much affected by the extreme items.

VARIABILITY

The averages which we have discussed are used to measure the central tendency of a series. But they fail to give definite idea of the formation of series or the difference of other items from their position. In other words, if we know that the median of a particular series is 15 which has been computed from the scores of a test of ninth grade students; it hardly throws any light how the different scores are close to or scattered from it. Therefore, there should be some measures through which the difference of items in series from its average can be found out.

Apart from this two or more frequency distributions may have same averages but they may differ also in terms of their size of items. The average may be the same but their formation may differ to a great extent. The following table⁵ contains three groups which have the same mean but differ considerably in their formation.

TABLE 7

DISTRIBUTION HAVING THE SAME MEAN BUT DIFFERENT VARIABILITY

Class Sort	Frequency		
	A	B	C
77-79	1	—	—
74-76	6	7	28
71-73	11	12	20
68-70	16	14	11
65-67	20	16	7
62-64	18	17	5
59-61	14	20	3
56-58	12	14	3
53-55	11	13	7
50-52	7	7	12

⁵ Walker, Helen M. *Elementary Statistical Methods*, p. 112.

47-49	7	3	17
44-46	—	1	11
41-43	—	—	—
38-40	1	—	—
TOTAL	124	124	124
MEAN	62.3	62.3	62.3
RANGE	41	32	32

Thus we reach the conclusion that the mean does not give necessarily the exact idea about the formation of a frequency distribution. It is, therefore, difficult to compare more than one frequency distribution on the basis of mean because in one frequency distribution it is possible that the scores of the pupils may be very close to the mean while in the other the scores may be widely scattered from the mean. This difference in the distribution of scores is known as variability. Therefore, the measure of variability can give the exact idea of the series or frequency distribution.

Mean Deviation

One of the measures of variability is mean deviation. One can understand its principle easily for the algebraic sum of the deviation from the mean is always zero whether the scores are very close to mean or widely scattered from it. It is natural that all items in the series are hardly the same. Therefore, the deviations of all the items from any particular item will be noted in positive and negative as the case may be. It is again essential to work out some method which may enable to avoid the positive and negative deviations from cancelling each other. In other words, in that method there should be consideration of the size of deviation. Two methods are generally applied to present the positive and negative deviations namely (1) to ignore signs or (2) to square the deviations. When the first method is applied it gives mean deviation and the second produces standard deviation. Now we have to discuss mean deviation.

The mean deviation is the mean of the deviations of scores from some measure of central tendency such as mean or median. For instance 7 students have scored 2, 5, 5, 6, 8, 10 and 11 marks in a test. The median of the scores is 6. It is clear that there is sufficient difference between median score and other scores. Therefore, the

deviation of all the scores can be shown from the median.

TABLE 8
MEAN DEVIATION

<i>Scores</i>	<i>Deviations</i>
11	5
10	4
8	2
6	0
5	-1
5	-1
2	-4
	17

In this table the deviations of all scores from the median have been shown. The deviation should be added arithmetically without taking into consideration their positive or negative signs. The sum of deviations should be divided by number of scores which will consequently give the mean deviation.

Symbolically:

$$\begin{aligned}
 \text{Mean Deviation} &= \frac{\text{Sum of deviations}}{\text{Number}} \\
 &= \frac{\sum d}{N} \\
 &= \frac{17}{7} \\
 &= 2.43
 \end{aligned}$$

Mean deviation is an unsatisfactory measure as by not taking into consideration algebraic properties. Though the computation of mean deviation could be done by and any one of the measures of central tendency, yet median is more suitable than any other measure for its computation.

Standard Deviation

The algebraic signs of the deviation can be eliminated by squaring

them before they are added. The standard deviation can be found out by squaring the deviations from the average and then extracting the square root of the sum.

Symbolically:

$$\sigma = \sqrt{\frac{\sum d^2}{n}}$$

Here $\sum d^2$ represents the sum of squared deviations and N represents the number of items.

Standard deviation is represented by σ (sigma). Standard deviation as a measure of variability has been widely used in computation of coefficient of correlation.

Quartile Deviation

The quartile deviation is also called the semi Inter Quartile range. The measures of variability which we have discussed have shown that in their computation the deviations of all the items have been taken into consideration. But quartile deviation is such a convenient measure of variability that instead of considering each particular item it takes into account the groups. Therefore it is based upon Quartiles.

When the median is located in a distribution, it means it is divided in two halves and then it is divided into Quarters. There we get three dividing points. The lowest point is called first Quartile, represented by Q_1 , the second one is the median and the third point is called third Quartile which is represented by Q_3 . The distance between Q_3 and Q_1 is known as interquartile range. The half of this middle range or interquartile range is called quartile deviation which is represented by Q .

Symbolically therefore:

$$Q = \frac{Q_3 - Q_1}{2}$$

The computation of the quartile deviation is very easy. It does not care for the extreme variations. Quartile deviation decides the position of a person in a group. If it is said that a particular student has got a score of 70 in a test, it does not give any clear idea

of his position in the group. But when it is said that he is somewhere above the third quartile, it gives immediately the idea that at least seventy five per cent students are below him. Though quartile deviation is more stable and convenient measure of variability it is not so sensitive as are the means and standard deviation because it considers only quartiles and not each particular item.

CORRELATION

It has been found that under certain conditions two variables are interdependent. In other words, any change in one variable will bring automatically change in the other. In the field of educational psychology it has been tried by tests to find out mental and educational abilities of the pupils. It is not very difficult to show the relationship between two different performances in two tests of mental abilities by the same pupils.

Correlation is the relationship or interdependence between two quantities. If any measurable factor is responsible for any rise or decline in the values of two variables, it is easy to establish the relationship between them. In a particular case, if a rise in the variable A is always accompanied by the rise in B or vice versa, it shows same mutual dependence which is known as correlation. Correlation exists in degrees. For instance, any increase in the radius of a circle brings proportionate increase in its area. In other words, the relationship between these two variables is definite. This is an example of positive correlation. The negative correlation can be noticed when 25 per cent rise in price of a commodity is accompanied by 25 per cent fall in its demand. In other words, the correlation in variable A is followed by corresponding proportionate increase or decrease in variable B. The correlation will be negative if any increase or decrease in factor A is accompanied by a corresponding and proportionate decrease or increase in variable B.

The coefficient of correlation represents the extent to which two variables are related. It is, therefore, a numerical measure of the correlation between two variables. For instance, those pupils who have done well on an intelligence test, have shown their higher achievements in the test of arithmetic also and the amount of correlation existing between achievement in intelligence test and achievement in arithmetic test can be expressed in numerical terms

and this numerical measure is called coefficient of correlation. This coefficient of correlation varies from +1 through zero to -1. The coefficient will be +1 when there is perfect positive correlation, that is, if a pupil has scored the highest in an intelligence test has also obtained the highest marks in the test of arithmetic. The pupil who has been placed second in the intelligence test has been able to get second position in the test of arithmetic and so on till the last one who has obtained lowest score in one has also secured the lowest marks in the test of arithmetic.

Similarly perfect negative correlation has been represented by -1. It means the pupil who has been placed first on the intelligence test has secured lowest marks in the test of arithmetic. The pupil who has been placed second on former test has obtained marks next to the last on the other and so on till who gets last on the one has obtained marks to be placed first on the other. Complete independence or no correlation is represented by zero. Therefore, intelligence can be taken as variable like other variables.

Methods

To find out the coefficient of correlation the formula devised by Karl Pearson has been very convenient. It is calculated by dividing the sum of all deviations from their respective means by the number of items and the product of standard deviations of the two variables

Symbolically:

$$r = \frac{\sum xy}{n \sigma_1 \sigma_2}$$

where r represents coefficient of correlation, $\sum xy$ represents the summation of the product of all the deviations of each pair of observation from their respective means, σ_1 represents the standard deviation of subject; σ_2 represents the standard deviation of relative, n represents the number of items or observations, x represents first variable (subject) and y represents second variable (relative).

TABLE 9

CALCULATION OF KARL PEARSON'S COEFFICIENT OF
CORRELATION BETWEEN AGES OF HUSBANDS AND WIFE

Subject <i>x</i>			Relative <i>y</i>			
Age of husband (years)	Deviation from average (25 years)	Square of deviation	Age of wife (years)	Deviation from average (18 years)	Square of deviation	Product of deviations of 'husbands' age and of wife's age
m_1	x	x^2	m_2	y	y^2	xy
19	-6	36	14	-4	16	+24
21	-4	16	16	-2	4	+8
22	-3	9	15	-3	9	+9
23	-2	4	14	-4	16	+8
23	-2	4	17	-1	1	+2
24	-1	1	14	-4	16	+4
24	-1	1	17	-1	1	+1
25	0	0	18	0	0	0
26	+1	1	17	-1	1	+1
26	+1	1	20	+2	4	+2
27	+2	4	21	+3	9	+6
28	+3	9	20	+2	4	+6
28	+3	9	22	+4	16	+12
29	+4	16	22	+4	16	+16
30	+5	25	23	+5	25	+25
$\Sigma m_1 = 375$			$\Sigma x^2 = 136$			$\Sigma xy = +122$
$a_1 = 25$			$\Sigma m_2 = 270$			
			$a_2 = 8$			
			$\Sigma y_2 = 138$			

Therefore

$$n=15$$

$$\sigma_1 = \sqrt{\frac{\sum x^2}{n}} = \sqrt{\frac{136}{15}} = 3.011 \text{ years.}$$

$$\sigma_2 = \sqrt{\frac{\sum y^2}{n}} = \sqrt{\frac{138}{15}} = 3.033 \text{ years.}$$

$$\begin{aligned} r &= \frac{\sum xy}{n \sigma_1 \sigma_2} \\ &= \frac{+122}{15 \times 3.011 \times 3.033} \\ &= \frac{122}{136.99} \\ &= +0.89 \end{aligned}$$

The coefficient of correlation $+0.89$ shows a considerable positive correlation between the ages of husband and the ages of wife.

Though the above method is applied in calculation of coefficient of correlation when the averages contain fraction, the calculation may be too difficult. Therefore, short-cut method is suitable to get out of this difficulty. In this method the average is assumed and all the deviations are found out and are squared and the standard deviation is calculated.

The following formula is used in such cases :

$$n = \frac{\sum xy - n [(a_1 - x_1) (a_2 - x_2)]}{n \sigma_1 \sigma_2}$$

Here a_1 represents true average and x_1 the assumed average in the first series and a_2 represents true average and x_2 assumed average in the second series and $\sum xy$ represents the summation of products of deviations from assumed mean. The standard deviations of the two series are calculated by the formula

$$\sqrt{\frac{\sum d^2 - n (a - x)^2}{n}}$$

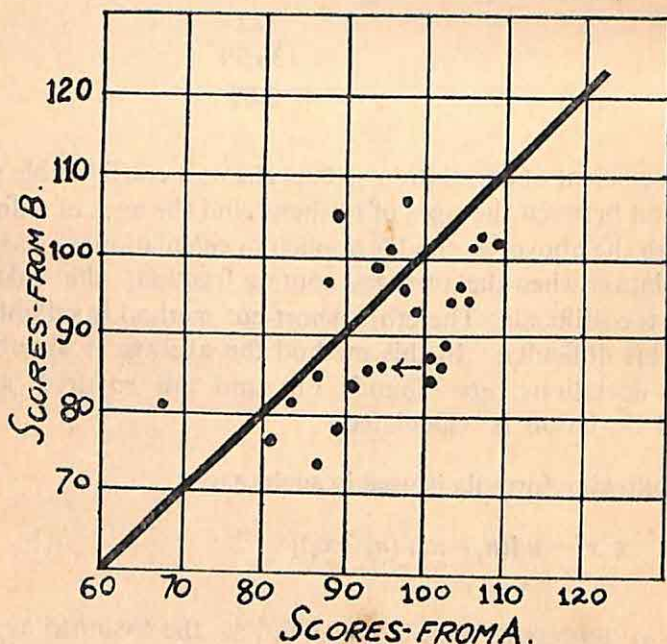
in which x represents assumed average, a represents actual average,

d^2 represents the square of deviation from assumed average and n represents the number of observations.

Scatter Diagram

The use of scatter diagram gives the general idea of the nature of relationship between two variables. When the number of pupils is large the scores are divided in certain class intervals. The scores are represented on vertical and horizontal lines. Each dot (.) is so placed that it represents the position of a pupil according to his performances in both the tests.

Figure 26



Scatter Diagram

(Each dot is a pupil's score, in form A read on the x axis, in form B on the y axis. Here $r = +.59$.)

Suppose a pupil has scored 94 on form A and 85 on form B he is placed by putting a dot above 94 at the height of 85 on the vertical scale. Similarly all other students are also placed according to their performance on both the forms. When these dots are placed in

such a way that they are nearly to take the form of a straight line then it means the correlation is near to perfection. When they are scattered the correlation is lowered. On the other hand the correlation will be negative when the dots are placed along the other diagonal.

A simple look at the diagram shows the nature of the group which has been given two tests. It shows the disparity of performance by different pupils. Therefore, the position of a pupil is easily found out and special attention by the teacher may be given if necessary.

CHAPTER 21

EDUCATIONAL RESEARCH

Education is a discipline based upon scientific research. In the study of education a student has to be familiar with the allied fields of psychology, sociology, anthropology, history and philosophy. As a matter of fact all the social sciences are to be found in an integrated form in the field of education. In educational research, therefore, the general methodology is that of social sciences. As stated earlier educational research is mainly scientific in nature though there are other types of educational research. These types are related to the nature of problems under investigation. For example if a problem is philosophical the methodology might be a little different from that of a psychological study. None-the-less in research one has to be objective and scientific so that the findings are reliable and applicable to a representative area.

The Nature of Educational Research

There is a lot of confusion as regards the nature of educational research for different researchers have different approaches. This is due to perhaps the relationship of education with social and biological sciences and other related fields. According to Barr, "the term *educational research* means different things to different people. This is what one might expect, however, in an area like education which finds its foundations distributed so generally among various fields such as history, philosophy, mathematics, sociology, psychology and the biological sciences.... The diversity of meanings attached to the term educational research may also be inferred from the diversity of methods, materials and processes employed in research."¹

Thus it is apparent that the nature of educational research depends upon the nature of the problem being studied and also the methodology being used. In education we have historical, philosophical, experimental, normative-survey, comparative, diagnostic and other types of researches. These types of researches in education provide

¹ Encyclopaedia of Educational Research, III Ed., p. 1160.

a great variety in the nature of educational research. But the main thing is the common concern expressed by these researches which is the education of man. Education is for the child and his development into a healthy and useful adult. Educational research is devoted to discovering new insights and understandings so that educational problems are solved satisfactorily.

The Aims of Educational Research

According to Watts an educational research worker has to be fully trained in theoretical and experimental psychology and then he should endeavour to do the following three things:

- “(a) he will aim at providing us with outline charts of normal development in various directions in the intellectual, social, and aesthetic spheres by specifying the natural stages of growth particular to each, and the order in which these must pass through if mental development is to be vigorous and healthy;
- (b) he will succeed in working out reliable standards of achievement in the acquisition of various forms of skill, so that we may be able to gauge with some approach to accuracy by how much the performance of any child in any direction exceeds or falls short of the average; and
- (c) he will help us to discover methods of learning and of teaching which are most likely to be effective for given purposes.”²

As is evident from the above these aims are mainly from the mental development point of view. Watts has been concerned with the study of language and mental development of the children. Therefore, he has studied these aims from the mental development angle.

The Structure of Educational Research

The structure of educational research has a number of important components. One of them is the problem to be investigated. It has been observed that without a clear conception of the problem to be investigated research is shoddy. In order to determine

² The Language and Mental Development of Children, p. 257.

the nature of problem to be studied it is desirable to discover the difficulties felt by educational workers in an area. It has to be noted that a worthwhile and useful research is not concerned with personal problems but with such problems as are widely felt by a large number of people. Thus to start with one must familiarize himself with the difficulties being faced by teachers and others in the area of education. When a particular difficulty has been spotted the next thing is to formulate the problem in clear and concise language. Sometimes some researchers use vague words and it becomes extremely difficult to understand the exact nature of the problem being investigated. Thus the problem has to be formulated in clear and concrete terms.

After the problem has been stated in clear terms the next thing to do is to raise a number of questions to be studied. These questions then enable the investigator to formulate certain hypothesis. Here we may note that "an hypothesis is a tentative generalization about the nature of the difficulty under consideration, calling attention to fundamental relationships or possible solutions, that may arise early in an investigation and may help guide the search to follow."³ In other words, an hypothesis draws the attention towards the nature of problem and its possible solutions. In a statistical investigation there is the null hypothesis and in non statistical studies the hypothesis is descriptive. According to Garret the null hypothesis in its simplest form "asserts that there is no true difference between two population means, and that the difference found between sample means is, therefore, accidental and unimportant. The null hypothesis is akin to the legal principle that a man is innocent until he is proved guilty."⁴ At another place he discusses the nature of the null hypothesis and observes, "the null hypothesis is not confined to zero differences nor to differences between the statistics. Other forms of this hypothesis assert that the results found in an experiment do not differ significantly from results to be expected on a probability basis or stipulated in terms of some theory. A null hypothesis is ordinarily more useful than other hypotheses because it is *exact*."⁵

³ Op. cit., p. 1161.

⁴ *Statistics in Psychology and Education*, Indian Ed., 1961, p. 212.

⁵ *Ibid.*, p. 247.

Null Hypothesis

Good has given three meanings of null hypothesis: (1) the hypothesis that two or more treatments are equally effective; (2) the hypothesis that corresponding parameters of two or more populations are equal; (3) the hypothesis that a population parameter is of a specified exact value. As regards the descriptive hypothesis it is "a statement that names, defines or classifies some thing that is observed and seeks to relate the present object of concerned to other things observed and described."⁶ Thus it is apparent that formulated hypotheses have an important bearing in the setting of educational research.

Sample

Sampling is another important element of a good research. Not only the problem of research be a real one and hypotheses formulated clearly but also it must have a representative sample. In other words, the problem to be investigated has to have a representative population of the subjects so that the findings are applicable to a sufficiently large area and possess reliability and validity. In a good research design the sample is carefully determined. It may be noted here that a sample is "a finite number of observations, individuals or units selected from those which comprise a particular universe for the express purpose of making an inference about the universe, often assumed to be representative of the total group or universe, of which it is a part; a general term referring to a group selected by any means to represent a population...." Thus there may be various types of samples such as random sample, cluster sample, stratified sample, etc. But the size of the sample to be selected depends upon a number of factors. Important among them are the funds available and the time as well as the number of investigators to be engaged. If the resources are limited the size of the sample has to be such as can be easily tackled. Sometimes it happens that a sample is selected without due regard to the resources for research available.

Collection of Data

After the sample has been selected and its size determined the collection of data takes place. For collecting the data certain

⁶ *Dictionary of Education*, 1959.

devices are used such as questionnaires, rating scales, tests, observation and interview schedules etc. These devices are useful to the extent they are reliable and valid. To use an unreliable and invalid devices for purposes of collecting the data is to spoil the whole research. Thus it is extremely important that the instruments to be used in the collection of data should be reliable and valid. Not only that but the research workers should also be sufficiently trained in handling those instruments and devices. When the data has been collected its analysis is done. Now in the analysis of data the care has to be taken in regard to the questions whose answers are to be found. Generally in a research the collection of data is not entirely to the point. Sometimes such data is also collected which is not directly related to the problem being investigated. The analysis of data requires insight and imagination on the part of a researcher. The analysis of data by an unimaginative researcher is merely a group of figures without any meaning. So the analysis of data has to be done in a manner that it becomes useful and meaningful in the context of the problem of research. On the basis of this analysis certain inferences and generalizations can be made. These inferences and generalizations are valid to the extent the sample of the research is representative.

The Research Report

The results of a research are reported in a logical form. According to Wiseman⁷ the following general pattern is adopted in writing a research report or thesis:

- (a) Outline of the research;
- (b) Statement of the problem;
- (c) Review of the pertinent literature;
- (d) Design of the experiment;
- (e) Description of the measurement techniques;
- (f) Statement of the results;
- (g) Interpretation and discussion of results;
- (h) Summary of the conclusions;
- (i) Bibliography and any necessary appendices.

It will not be out of place to comment upon the thickness of a

⁷ *Reporting Research in Education*, 1952.

thesis. In India unfortunately most of the thesis are bulky. It is the impression of many researchers that if a thesis is very thick it creates a good impression on the examiners. It may be true in regard to some other subjects but not for education. Wiseman has pointed out that, "there is little relation between 'quality' and 'quantity'—indeed, a study of some thesis would suggest that what relationship is there may well be an inverse one. It is quite possible to conceive of a highly effective thesis (on an experimental topic) no more than thirty typewritten foolscap pages in length. Most, of course, will be (justifiably) longer than this, but it will be rare indeed to find a good 'thesis' an inch or two inches in thickness."⁸

METHODS OF EDUCATIONAL RESEARCH

Methods of educational research can be classified on the basis of fields of research, purpose, place, application, tools of research, nature of the data, etc. Generally the historical method, the normative-survey method, the experimental method, the correlation method, the case study method and the genetic method are used in educational research.

The Historical Method

The historical method is used in the study of the historical problems and it involves collection of data based upon documents and other primary sources as well as secondary sources. After the data has been collected its criticism is done on the basis of external and internal evidence. Afterwards the findings are presented in such a manner as enables the reader to have a correct view of the problem studies. In a historical study the following types of documents etc. are found useful: legislative acts, courts decisions, executive and other official records, newspapers and periodicals, personal materials such as diaries, autobiographies, letters, notes, etc. and literary materials reflecting the social and political conditions of the period under study.

The Normative-Survey Method

The purpose of a normative survey is to ascertain the prevailing

⁸ *Ibid.*, p. 2.

conditions. If the historical method is devoted to the study of the problems in the past the normative-survey method deals with the problems of the present. It endeavours to determine the real facts of a given situation. As regards its nature it is pointed out that the 'normative-survey' stands for such a study in which data is gathered pertaining to prevailing conditions. The word 'normative' emphasizes the 'normal' or 'typical' aspect of the survey. In other words, the normative-survey is devoted to finding out the typical conditions or practices pertaining to the problem under study.

There are various types of normative-survey research. But its six types are more commonly used. These are: (1) survey testing, (2) questionnaire enquiries, (3) documentary frequency studies, (4) interview studies, (5) observational studies and (6) appraisal procedures.

The survey testing type of normative-survey research is devoted to testing of a group of individuals in order to find out the prevailing conditions in regard to the tests being measured by the test concerned. Survey testing is commonly used in ascertaining achievement of pupils in schools. It is also devoted to appraisal and evaluation of certain educational practices. The various types of intelligence and personality test are used in survey testing. It is to be noted here that the results of survey testing are to be interpreted keeping in view the limitations of the study. The findings are reliable and valid to the extent the test used is reliable and valid. It also depends upon the representative character of the sample.

The second type of normative-survey research is based upon questionnaire enquiries. "A questionnaire is a form which is prepared and distributed for the purpose of securing responses to certain questions. Generally these questions are factual designed to secure information about conditions or practices of which the recipient is presumed to have knowledge. The questionnaire may, however, ask for opinions and it may be used to afford an insight into the attitudes of a group."⁹ The questionnaire technique is widely used in educational research devoted to the determination of studies and professional characteristics of educational workers. Questionnaires have also been found useful in the studies of

⁹*The Methodology of Educational Research*, p. 324.

current educational practices, financial conditions, etc. Sometimes a questionnaire is used in order to study the attitudes of pupils or teachers or the public towards certain educational programmes. The success of a normative-survey based upon questionnaire enquiry depends upon the quality of questions included in the questionnaire. According to Bowley¹⁰ the questions included in a questionnaire should have the following characteristics:

- (1) Comparatively few in number;
- (2) Require an answer of a number or of a 'yes' or 'no';
- (3) Simple enough to be readily understood;
- (4) Such as will be answered without bias;
- (5) Not unnecessarily inquisitorial;
- (6) As far as possible corroboratory;
- (7) Such as directly and unmistakably cover the point of information desired.

Studies have shown that vague and ambiguous questions are differently interpreted by different people. Sometimes they also remain unanswered. It is, therefore, desirable to avoid vague and ambiguous questions. Sometimes some questions are emotionally charged. Such emotionally charged questions are resented by respondents and their responses are also not objective. Thus care has to be taken to exclude such emotionally charged questions as put needless strain on a respondent. In some questionnaires there are certain questions which are leading and try to put the answer into the mouth of a respondent. Such leading questions must be avoided. Then loaded questions containing a strong bias should also be avoided. Such questions as encourage wild guess work are also to be avoided. Sometimes due to neglect such questions are included in a questionnaire as have structured response category and do violence to established facts. These questions must be excluded from the questionnaire.

One of the common objections against the questionnaire enquiry is that answers given to questions are not reliable. Some people read the questionnaire very lightly. In other words, the full cooperation of a respondent is not available in a questionnaire enquiry for he becomes conscious of the fact being enquired. That is why

¹⁰ *Elements of Statistics*, 1920, pp. 18-25.

indirect methods of enquiry have been developed. But this disadvantage is not much against the advantages in a questionnaire enquiry.

In order to get the responses of illiterate subjects a schedule is prepared. A schedule is a kind of questionnaire which is used by an investigator. In other words, while a questionnaire is self administered a schedule is used by an investigator in order to get the responses of those subjects who cannot read and write. The same care is to be taken in preparing a schedule as is required in the preparation of a questionnaire. It is to be noted that a schedule can be used only by a skilled investigator. In rural areas where illiteracy is prevailing schedules have been found useful in the field studies.

Interview Studies

There are studies in which interview is used as a research tool. In an interview the investigator is face to face with his subject and is able to elicit the desired information. Thus an interview may be defined as a systematic tool of research by which an investigator enters more or less imaginatively into the life of any person who is comparatively stranger to him. In other words, the technique of interview enables an interviewer to discover the hidden purposes, ideas, thoughts, wishes, desires, frustrations, motivations, etc. A skilled interviewer is able to assess properly the opinions, beliefs, attitudes and values of his subject. Thus the technique of interview is very effective in research.

There are six main types of interviews. The first type is that of unstructured or unstandardized interview. In an unstructured interview the interviewer does not have a standard list of questions to be asked. The interview takes place more or less spontaneously. Nonetheless, the goal of interview is before the interviewer and he tries to find out answers from the subject pertaining to the problem under study. The second type of interview is structured or standardized and in this type of interview there are set questions to be asked so that set responses are available. In such an interview the interviewer is not free to change the form of a question or to add some more new questions. Sometimes in a structured interview there are open-ended questions which permit some liberty to the respondent in answering a question. Then there are 'closed questions' which do not permit any freedom to the respondent in regard

to the answer of that question. The third type of interview is the focused which became popular during the War. This type of interview was used in discovering the morale. For this purpose mass media of films, radio and pamphlets were used. A focused interview has various aspects such as range, depth and personal contacts. The fourth type is that of informal interview. In this type of interview there is no assurance that the responses will be able to indicate a subject's inner feelings. It is more or less a superfluous type of interview. The informal type of interview is in between the structured and the unstructured types of interviews. The fifth type is known as the mass interview which is limited in its range and utility and can be utilized in the study of simple problems which generally require responses in the form of yes or no. One advantage in this type of interview is that the data collected can be easily statistically analysed. The sixth and the final type of interview is non-directive and clinical. This type of interview is mostly used by psycho-analysts. In such an interview the interviewer has to be non-directive, that is, he does not give any guidance and suggestion to the subject. He is encouraged to say whatever he likes. Thus the non-directive type of interview is extremely difficult and requires great restraint on the part of the interviewer.

There are certain points in an interview which require careful consideration. First of all the interviewer has to plan beforehand. He has to establish rapport with his subjects so that the interview takes place in a harmonious environment. Secondly there should be no element of suspicion about the nature of interview. The interviewer should be able to satisfy the curiosity of his subjects. Thirdly in an interview care has to be taken to ask the right question at the right moment. A question asked in a wrong sequence is likely to elicit wrong information. The investigator should try to be friendly and permissive and thus probe into the feelings and attitudes of his subjects. Finally delicate and sensitive areas of interview should be avoided in the beginning. When good rapport has been established delicate questions can be asked towards the end of the interview.

Errors in an interview occur when the appearance and the manners of an interviewer are not of the liking of the respondents. In certain cases the factors of caste and religion intervene and affect an interview. Thus care should be taken to appoint such interviewers who have ethnic and cultural relationships with the subjects to be studied. But it is not always possible to do so. Nonetheless

this limitation has to be noted and due care should be taken to minimise errors that occur on account of the strange appearance and manners of the interviewer. Errors also occur due to wrong wording of a question. Questions have to be properly worded so that responses are correctly acquired. The attitudes of the interviewer often affect an interview. If his attitudes are unfavourable towards the subjects the responses are likely to be full of errors. The other factors responsible for errors in an interview are influence of an interviewer's expectations, his variations in probing and recording. Nonetheless it is admitted on all hands that the technique of an interview is a very useful one and through it is possible to collect reliable data provided investigators are trained and skilled in the method of interviewing.

The Case Study Technique

The technique of case study is widely used both in the natural and the social sciences. As a method of research it involves the collection and analysis of data pertaining to one or more phases in the life process of an individual. The unit of a case study may be an individual, a family, a group, a social institution, a community or a nation. The case study technique has been also utilized in the analysis of adjustment problems. From this angle the case study has been defined as "detailed study of an individual, conducted for the purpose of bringing about better adjustment of the person who is the subject of the investigation."¹¹ According to Pauline Young, "through the case method social researcher attempts to see the variety of factors within a social unit as an integrated whole". Thus the case study method provides a complete picture indicating the various dimensions of the unit under study.

There are certain important characteristics of the case study technique. First of all case studies are not devoted to the examination of some particular traits or attributes. They are concerned with the entire range of the unit under study in a particular situation. In other words, the case study is devoted to the whole and not to a part of a unit. Secondly case studies have a specific focus. They try to highlight the various features of the unit under study from the beginning to the end. At this point it

¹¹ Traxler, "Case Study Procedures in Guidance", *School Review*, 1938,

may be noted that the case studies are not mass studies for they are concerned with one unit and not with a group of units taken as a whole. The third important characteristic of the case study method is that it goes deep into the nature of a problem as well as examines its various horizontal relationships. Thus the case study method enables an investigator to analysis a problem in depth as well as in breadth. Fourthly case studies are not confined to one point of time. They are actually concerned with examining a problem in the process of time. In other words, case studies are process studies and they offer more or less a continuous chronological picture of the different stages of a process. Finally case studies are in essence qualitative studies. In other words, the analysis of a case study data is not quantitative but qualitative. This may be considered as a kind of drawback in the technique of case study. Nonetheless a skilled investigator is able to make qualitative analysis of the case study data in a significant manner. The technique of case study in research is successful in such areas as cannot be formalized and structured. Then the case study method takes into consideration various human factors as well as intervening variables. It enables the researcher to have a complete picture of a case and thus form a comprehensive and realistic view of a situation. As stated earlier the case study technique is helpful in collecting qualitative data and, therefore, the findings are a particular nature. They are more or less of a personal character. They cannot be generalized unless a representative sample is taken into account for purposes of case studies.

From educational research point of view the case study method can be usefully applied to problems of adjustment. According to Wrightstone et.al., "the case study represents an analysis and synthesis of an individual's physical and psychological assets and liabilities by school, medical and psychological personnel. The purpose of the case study is to achieve better adjustment of the individual by means of a comprehensive appraisal of all factors contributing to the problem under study and to institute remedial activities. Children with serious difficulties in adjusting to home or school situation are usually studied by means of this technique."¹² Thus it is clear that case studies are generally used in educational

¹² *Evaluation in Modern Education*, 1956, p. 223.

research for purposes of studying adjustment problems. But this method can also be used even in normal cases where the purpose is to provide guidance of educational or vocational nature.

Sociometry

The sociometric methods are being used in educational research now-a-days. The science of sociometry has been developed by Moreno. Its real nature depends upon various factors. Let us study some of the definitions of sociometry in order to have an idea about its nature and purpose. According to F.S. Chapin:¹³

Sociometry is the mathematical study of psychological properties of populations, the experimental technique of the results obtained by application of quantitative methods, so reads the definition of the subject given by J.L. Moreno, who has chiefly popularized the term among students of human behaviour. My inclination is to go to etymology of the word which shows it to be a combination of the Latin *socius*, meaning social, and the Latin *metrum* meaning measure, or the Greek *metron* meaning measure. Thus the term would mean "social measurement."

Thus the sociometric methods are helpful in social measurement. According to Bain, "sociometry is and probably will remain a generic term to describe all measurements of societal and interpersonal data." In the light of these definitions it is now possible to have an idea of the nature of sociometry.

Sociometric methods are used in order to determine the relationships existing among the members of a group in a given situation. One of the sociometric methods is that an individual is asked to name a limited number of people of his group with whom he would like to associate. Thus by this method it is found out the nature of relationship existing in a given group. The second method is to ask an individual to rate other members of his group on a scale. This method is helpful in discovering the degree of acceptance prevailing in the group. Generally 5-point scales are used indicating the five degrees: (1) very, very best friends, (2) good friend, (3) not friend but okay, (4) do not know him, (5) not okay. The Ohio

¹³ *Sociometry*, III (1940).

State University has published the Ohio Social Acceptance Scale which is a sociometric device. Another sociometric method is used for obtaining insight into the difficulties experienced by pupils. This is known as "who's who" approach. In this method the pupils are asked to recognize a member of their group on the basis of description given. A typical instruction runs as follows: "in this booklet there are many paragraphs. They tell about different kinds of boys and girls. As you read each paragraph ask yourself: 'is there anyone in our room like this?' If there is, put that person's name under the paragraph. If you think more than one person, write these other names also. If there is nobody in your room like this write 'nobody' and go on to the next paragraph."

Sociometric methods have helped in discovering social adjustment problems and thereby enable the teachers to promote social adjustment in their class rooms. There are various other sociometric techniques which have been developed by skilled teachers. But it may be noted that, "while there are no formal rules for the construction of sociometric tests, the alert teacher will find numerous opportunities for the development of sociometric devices in the course of his normal class room work. He must be careful not to violate the confidence of his pupils and should be certain to utilize the choices made by his pupils in order to put their expressed desires into effect."¹⁴ Thus the science of sociometry has provided a number of useful methods for purposes of research and evaluation.

¹⁴ *Evaluation in Modern Education*, p. 213.

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INDEX

- Abnormal behaviour 256-71
- Biological factors 256-63
 - Constitutional make up 258
 - Ectomorphy and ceribrotonia 260
 - Endomorphy and viscerotonia 259-60
 - Endocrine glands 261-3
 - Hereditary causes 257
 - Physique and temperament, Sheldon's classification 258-9
- Cultural factors 268-71
 - Child training 268-9
 - Minority communities 270-1
 - Strict control 270
 - Value structure 269
 - Wishes 269-70
- Psychological causative factors 263-8
- Adler, Alfred 117, 230, 281, 286-7
- Allport, F.H. 207-8
- Allport, G.W. 162, 208, 211
- Apperception 5
- Aristotle 1-2, 5, 169
- Attention and interest 82-4
 - Factors influencing attention 83-4
 - Training in attention, factors 85-6
- Attitudes, development of 165-6
- Austin, M.C. 62
- Autonomous nervous system,
 - Parasympathetic 214
 - Sympathetic 214
- Basic child training, 218-20
 - Love and sympathy 220
 - Regularity of habit 218-19
 - Rigidity and frustration 219
 - Social controls and moral sanctions 220
- Behaviourism 9-10
- Bernard, Luther L. 154
- Binet, Alfred 137-48
- Bony muscular system 34-7
- Book, William F. 175
- Boring, Edwin G. 48
- Bowley, A.H. 363
- Breckenridge, M.E. 21
- Bridges, K.M.B. 50-2
- Brown, A.W. 70
- Brown, Thomas 5, 169-70
- Brown, W. 80
- Buhler, K. 102
- Burks, Barbara S. 133
- Cannon, W.B. 45, 155
- Carmichael, Leonard, 50
- Carroll, H.A. 132
- Carroll, John B. 110-12
- Chapin, F.S. 368
- Character development
 - Factors related to 71-3
 - Age 71-2
 - Intelligence 72
 - Schooling 73
 - Sex 72
 - Socio-economic background 72
 - Educational implications 73-4
- Character Education Inquiry Project, 71.
- Child, Language development of the 101-12
 - Development, stages 102-5
 - Intercommunication, aspect of 103
 - Present position 110-12.
 - Reading ability, development of 107-9
 - Factors 108
 - Speech development, factors 105-7
 - Writing, development 109
- Children's friendship 61-4
- Chromosomal imbecility
- See
 - Exceptional child

- Chromosomes and genes 24-7
 Cicero 209-10
 Comenius 3
 Concept and reasoning, development of 91-100
 Conditioned reactions 39
 Associations 39
 Reflexes, defence 39
 Contiguous conditioning 187-90
 Crugman, M. 239
 Cruickshank, W.M. 113
 Darrow, C.W. 214
 Darwin, Charles 42, 48, 153
 Dawe, H.C. 111
 Descartes, Rene 153
 Dewey, John 8, 101
 Dissociative reaction 293-4
 Drever, James 47
 Dudycha, George J. 88-9
 Dudycha, Martha M. 88-9
 Dunlap, Knight 49, 154
 Ebbinghaus, Hermann 171, 175
 Education, for adjustment 297-305
 Goals, nature 301
 Needs 299-301
 Educational psychology
 Ancient India 1
 Western world 1
 Educational research 356-69
 Aims 357
 Data, collection of 359-60
 Nature of 356-7
 Null hypothesis 358-9
 Research report 360-1
 Sample 359
 Structure of 357-8
 Methods of
 Case study technique, 366-8
 Historical method 361
 Interview studies 364-6
 Normative survey 361-4
 Sociometry 368-9
 Ego 223-5
 Emotional development 41-56
 After birth 32
 Within uterus 28-31
 Emotions
 And education 55-6
 Decline of open expression of 54
 Definition 47-8
 Development 50-2
 Arousal 52-3
 Developmental patterns 53-5
 Emotions
 Differentiation and integration 54
 Expression of 48-50
 Facial expression 49
 Hand gestures 50
 Vocal expression 49
 Nature of 42-4
 Repression of 54-5
 Theories of
 Cannon-Bard 45-6
 Emergency 45
 James-Lange 43-5
 McDougalls' 46-7
 Thalamic 46
 Types
 Positive and negative 52-3
 Endocrine glands 39-40, 215-6
 English, H.B. 98
 Exceptional child 113-34
 Handicapped children 115
 Mentally handicapped 122-31
 Idiot 125-6
 Imbecile 126-9
 Mental retardation
 Moronity 129-30
 Nature of 113-4
 Physically handicapped children 116
 Blind 117
 Education of 117-20
 Braille system 118
 Crippled 122
 Deaf 120
 Education of 121-22
 Feleky, Antoinette 49
 Forgetting, causes 177-8
 Formal discipline 3-4
 Fox, Charles 93
 Frank, Lawrence K. 96-7, 232, 234
 Freeman, F.S. 143
 Freeman, G.T. 214, 216
 Freud, Sigmund, 12-14, 154, 167-8, 223-30, 280-1, 286, 289-91, 304, 307.
 Frustration, sources, 303-5
 Fuge 294
 Garret, H.E. 358
 Gestalt psychology 10-12
 Gifted children 131-4
 Adjustment of 133
 Characteristics of the 132

- Education of the 133-4
- Intelligence and age 132-3
- Interests of the 132
- Social adjustment 133
- Gilhousen, M.C. 80
- Goddard, H.H. 144
- Growth, concept of 19-20
 - General characteristics 21-2
- Growth and metabolism 32-3
- Guidance in education 319-32
 - Criteria 320
 - In Schools 328-31
 - Types
 - Educational guidance 320-5
 - Pupil data, compilation 323-5
 - Vocational guidance 325-8
- Guthrie, E.R. 187-91
- Herbart, J.F. 5
- Hering, Ewald 170
- Higginson, G.D. 9, 24
- Hopkins, K.D. 60
- Horney, Karen 230, 286
- Horrocks, J.E. 62
- Hull, Clark L. 191-6
- Hume, David 5
- Hypochondriacal reaction 292
- Hysteria 289-90
- Id 223-5
- Ideas, association of 5
- Images 93-6
 - And sensations 94-5
 - Functions of 95-6
- Imagination 93-7
 - Development of 86-7
- Independent assortment, law of 23-4
- Ingram, C.P. 131
- Inattention 84-6
 - Causes 84-5
- Insight 197-200
- Instincts 46
- Intelligence
 - Definitions 135-6
 - Historical background 136-7
 - Scale of 137-48
 - Binet-Simon scales 137-48
 - CAVD Test 150-1
 - Stanford revision 144-46
 - Theories of 148-52
 - Quotient 123-25, 132-3
- James, M.C. 55-6
- James, William 43-4, 86, 153, 162, 170
- Jennings, H.H. 66
- Jennings, H.S. 211
- Jersild, A.T. 48, 52
- Johns, Arthur J. 319
- Jones, A.J. 328
- Jung 213
- Kabanov, A.N. 27
- Kerr, M. 212
- Koffka, Kurt 10-12, 197, 199
- Kohler, Wolfgang 10, 197
- Landis, Corney 49
- Lange, Karl G. 43-4
- Langfeld, Herbert S. 48
- Language, Meaning, 101-2
- Lashley, Karl S. 175
- Latent learning 204
- Learning
 - Methods, by insight 197-200
 - Trial and error 197
 - Theories of 182-205
 - Behaviourist approach
 - Hull's theory of behaviour 191-3
 - Reinforcement 193-7
 - Primary 194
 - Secondary 195-7
 - Connectionism 182-4
 - Law of 184-7
 - Contiguous conditioning 187-90
 - Four laws of organisation 198-9
 - Gestalt approach to 197
 - Experiments by Kohler 197-8
 - Pragnanz, the law of 198
 - Tolman's theory of sign gestalt 201-5
- Libido 225-30
 - Anal erotic stage 229
 - Localization of 228-30
 - Oral erotic stage 228
- Locke, John 4-5
- Lovell, K. 179-81
- McCarthy, Dorothea 102
- McConnell, T.R. 21
- McDougall, William 46, 83, 153, 162
- McGeoch, John A. 176
- Maturation and learning 20
- Mature personality 231-33

- Memory
 Ascension-submission scale 91
 Development of 88
 Early memories, adult recall of 188-93
 Methods
 Discussion 92-3
 Findings 92
 Rating scores 92
 Recall, types of 87-8
 Involuntary 87
 Voluntary 87
 Retention 86-8
 Mendel, Gregor 22-3
 Mendelian inheritance 211
 Mendel's laws 23-5
 Mental development 75-100
 Nature of 76-7
 Stages 77-8
 Mental health factors affecting 306-16
 Mental health
 Education and 306-18
 Factors affecting 306-16
 Class management 313-4
 Community influences 311-2
 Mental health of the teacher 314-5
 Work load 315-6
 Principles 316-18
 Mental processes, groups of 6-7
 Merrill, Maud A. 145
 Merrill-Palmer ratings 91
 Miles, Walter R. 155
 Mill, James 170
 Miller, M.L. 215
 Montagu, M.F.A. 58
 Morgan C.D. 242
 Morgan, T.H. 24
 Moreno, J.L. 65, 368
 Moss, Fred A. 155
 Motivation 153-68
 Behaviour, instinct theory of 153-4
 Categories of 159-60
 Drive, physiological 154-5
 Drive and motive 157
 Motives
 As attitudes 164-5
 As interest 166-7
 As purpose 163-4
 As sentiments 162-3
 Types
 Mastery motives 160
 Other motives 161
 Social approval motives 160-1
 Unconscious motives 167
 Unlearned motives 158-9
 Munn, N.L. 162, 167
 Murray, H.A. 242, 249
 Nervous system 37-9, 75-7
 Central 75
 Peripheral 75
 Neurasthenia 290-1
 Neurosis, causes 286-7
 Classification 292-6
 Types of 287-92
 Obsessional 287-92
 Hysteria 289-90
 Null hypothesis 359
 Nutrition 33-4
 Obsessional neurosis 287-92
 Occupational neurosis 291
 Oedipus complex 230
 Parent child relationships 306-7
 Home conditions 310-11
 Over protection 309-10
 Rejected child 309
 Rejection 307-9
 Paterson, Donald 146
 Paugh, Tinkle 202
 Pavlov 188, 195
 Pearl, Raymond 24
 Pearson, Gerald H.J. 13
 Pearson, Karl, 351-2
 Pechstein, C.A. 177
 Peel, E.A. 17-18, 190, 195-6, 201
 Perception 80-1
 Children's 82
 Factors influencing 81-2
 Gestalt view of 82
 Performance test 146
 Personality 206-33
 Definitions 206-10
 Determinants of 211-23
 Biological factors 211
 Autonomous nervous system, role 213-5
 Heredity vs. environment 212-13
 Impact of glands 215-16
 Twins, studies of 211-12
 Culture and personality 216-23
 Maladjustment 222
 Psycho-analytical approach 223-30
 Sense of significance 221

- Social adjustment 221
- Personality disorders 272-85
 - Pattern disorders 272-7
 - Inadequate personality 272-3
 - Paranoid personality 274-5
 - Psychothemic personality 272
 - Schizoid personality 273-4
 - Trait disorders 275-85
 - Alcoholism and drug addiction 284-5
 - Anti-social reaction 278-9
 - Compulsive personality 277
 - Dyssocial reaction 279
 - Emotionally unstable personality 275-6
 - Passive-aggressive 276-7
 - Sexual deviation 279-84
 - Sociopathic personality 277-8
- Phobic reaction 295
- Piaget J. 97
- Piderit, Theodor 42-3
- Pintner, Rudolf 146
- Plato 1, 169
- Postman, L. 68
- Powell, M. 67
- Prince, Morton 207
- Projective techniques 234-55
- Psychoanalysis 12-14
- Psychological disorder, signs of 249-53
 - Health, signs of 254-5
- Psychology
 - Educational 14
 - Aims and objectives 15
 - Definition 18
 - Nature and scope 14-17
 - Schools of 5-14
 - Behaviourism 9-10
 - Functional psychology 7-9
 - Gestalt psychology 10-12
 - Psychoanalysis 12-14
 - Structural psychology 6-7
- Psychoneurosis 286-96
- Quintilian 3
- Rank-order procedure 67
- Rating scales 67
- Reactive inhibition 196
- Remembering 169-77
 - Historical background 169-71
 - Learning, stages 169
 - Length of lists 173
 - Meaning and rhythm 172-3
 - Overlearning 174-5
- Spaced learning 175-6
 - Whole vs. part method 176-7
- Retention, factors in 178-181
- Richter, Curt P. 155
- Roback, A.A. 187
- Rorschach, Hermann 235
- Rorschach Technique 235-41, 255
 - Administration 236
 - Interpretation 239
 - Scoring and interpretation 237-9
- S-R bonds
 - See
- Stimulus, response bond
- Schwesinger, G.C. 212
- Segregation, law of 23-4
- Seguin, Edouard 146
- Sensation 78-80
- Sexual deviation 279-84
 - Fetishism 281-2
 - Homosexuality 280-1.
 - Masochism 283-4
 - Pedophilia 281
 - Sadism 282-3
 - Transvestism 281
- Shaffer, L.F. 157-9, 161-2
- Sheldon, William 258-9
- Sherman, Mandel 49
- Sign learning 201
- Simon, Theophile 137-48
- Skinner, B.F. 110
- Skinner, L.E. 15
- Smith, Madorah E. 90
- Smith, W.W. 214
- Social, development 57-74
 - Nature of 57-8
 - Stages 58-61
 - Interaction, meaning and measurement, 64-8, 70
 - Values and attitudes, growth of 68-71.
- Sociogram 66-7
- Sociometry 65-6, 368-9
- Socrates 316
- Somnambulism 294
- Stagner, Ross 214-5
- Statistics in education 333-55
 - Central tendency 341-6

- Arithmetic mean 341-2
Median 342-4
Mode 344-6
Correlation 350-55
Methods 351-4
Scatter diagram 354-5
Graphic representation 337-41
Frequency polygon 339
Histogram 337-9
Normal probability curve 340-1
Measurement 333-7
Frequency distribution 335-7
Ranking 333-5
Stephens, J.M. 16
Stimulus, generalization 196
Response bond 193-5
Connection 193-6
Stimulus response association psychology 188
Stott, L.H. 20
Strang, Ruth 133
Sullivan, Harrystack 230
Super-ego 223-5
Tabula rasa, concept of 4-5
Theimar, Walter 127
Thematic Apperception Test 242-55
Administration 244-7
General procedure 244
Interpretation 247
Thema, needs and press 248-9
Thomson, G.G. 62, 67, 69, 89
Thorndike, E.L. 71, 147, 150, 153
182-92, 199.
Thornton, N. 283
Titchner, Edward B. 6, 44, 48
Tomi Wada 155
Training, transfer of 3-5
Traumatic neurosis 291
Trial and error 197
Trow, W.C. 18, 47, 50, 56, 164, 299
Valentine, C.W. 47
Vigotsky, L.S. 102
Vincent, E.L. 21
Visual defects 117
Vogel, F. 127
Wang, Charles K.A. 88
Wang, Ging-hsi 155
Warden, Carl G. 155-6
Warner, Lucein H. 155
Watson, John B. 9-10, 55-6, 154, 208
Watts, A.F. 357
Wertheimer, Max 10, 198-200
Witryol, S.L. 89
Woodworth, R.S. 2, 87, 154-9, 163, 169, 177
Wundt, Wilhelm, 6, 44-5
Yerkes, Robert M. 175
Young, Pauline 366
Zeigarnik, principle of 179